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WorldRiskReport 2024

Focus: Multiple Crises

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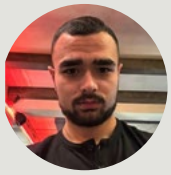
Preface

We all have to face the consequences of climate change. Across the globe, a growing number of people live in regions that are exposed to numerous crisis factors. Extreme natural events such as droughts and floods are on the rise and pose major challenges to societies around the world. These events often coincide with existing crises such as pandemics, civil wars, and armed conflicts, resulting in cascading impacts that are difficult to manage. Poverty, social inequality, and limited state capacities lead to hunger, lack of education, and psychosocial challenges, especially for vulnerable population groups such as women and girls. Millions of people are forced to flee their homes.

This year's WorldRiskReport examines how these overlapping and interacting crisis factors affect people and societies. These multiple crises make it difficult for the aid organizations working together in Bündnis Entwicklung Hilft to implement specific measures for different target groups. Young people in particular feel burdened and overwhelmed by complex crisis scenarios and see their future prospects threatened. One example is 22-year-old Ion from Chişinău in the Republic of Moldova:



Ion, 22
lives in Chişinău, Republic of Moldova. He studies at the Technical University of Moldova and is a recipient of the CONCORDIA Social Projects "Wings4Youth" scholarship.

Like everyone here, I find myself in a state of constant uncertainty. The war in our neighboring country, Ukraine, affects everything from our economic opportunities to our access to basic goods like clean water and medicine. Since the war began, prices have skyrocketed and the economic situation has deteriorated.

We have not been able to recover from the impacts of the Covid-19 pandemic. Layoffs were frequent, friendships broke, many people lost relatives, and financial hardship was omnipresent. Am I supposed to build a life under these conditions? The war in Ukraine has intensified the feeling of uncertainty. Some young people from Transnistria even had to go to the front as soldiers. Discrimination based on language has increased, leading to disputes over the official language in Moldova.

The war threatens our energy supply, as we depend on Ukraine for electricity: Heating is becoming almost unaffordable and power cuts are frequent. As a student of energy technology, I want to find ways to optimize energy use and diversify our energy sources.

The political crises also take their toll. Constant changes and broken promises by politicians make many people want to leave Moldova and find better opportunities elsewhere. Low salaries and high costs force people to take on debt with high interest rates.

Ion's case illustrates how complex conflict situations in crisis regions can be. For this reason, this year's WorldRiskReport includes a special evaluation of exposure to wars, insurgencies, and violence, allowing a comparison with exposures to extreme natural events. These findings are critical not only to better address the complex challenges of our time, but also to better understand individual stories like Ion's and provide more targeted help.

Dr. Ilona Auer Frege
Managing Director
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Further information

In-depth information, methodology and tables are available at **www.WorldRiskReport.org**.

All reports are available for download.

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The Institute for International Law of Peace and Armed Conflict (IFHV) of the Ruhr University Bochum is one of the leading institutions in Europe for research and teaching on humanitarian crises. With a long tradition in the scientific analysis of international humanitarian law and human rights, the Institute today combines interdisciplinary research in the fields of law, social science, geoscience and public health.

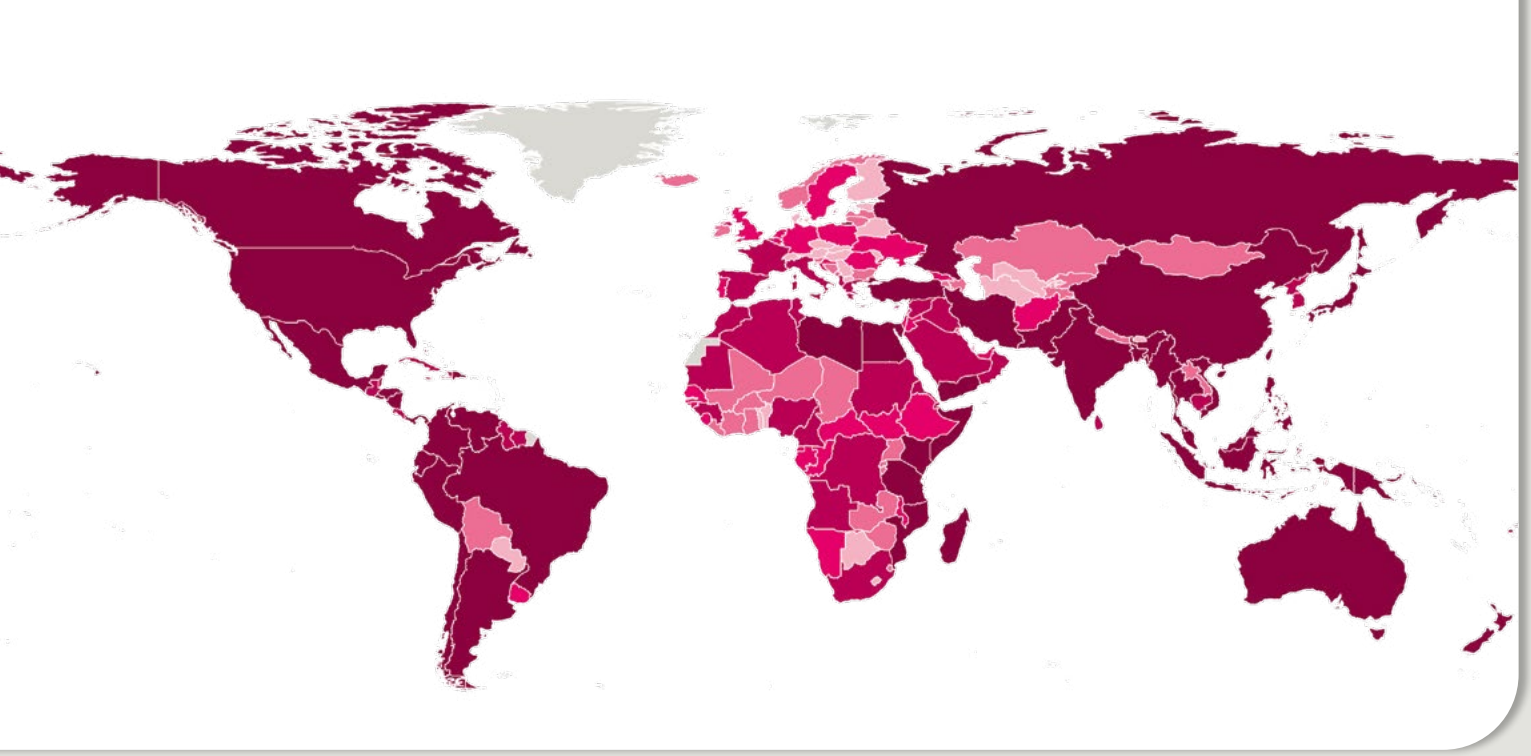

Figure 1: WorldRiskIndex 2024

Key Results

WorldRiskIndex 2024

+ The WorldRiskIndex 2024 assesses the disaster risk for 193 countries. It covers all United Nations member states and more than 99% of the world's population.

+ In 2024, the risk hotspots remain in the Americas and Asia, hosting eight of the ten countries with the highest risk scores. Over the long term, however, these hotspots will shift to countries with climate-sensitive exposure and high vulnerability.

+ The top 10 countries with the highest risk have changed only slightly: Mexico and Colombia switch places, with Colombia now having the highest disaster risk in the Americas. China drops out of the group and Pakistan moves up to 10th place.

+ China's descent from tenth to 22nd place shows that despite high exposure, overall risk can be significantly decreased by reducing vulnerability. China remains the most exposed country in the world, followed by Mexico, Japan, and the Philippines.

+ The country with the highest vulnerability is the Central African Republic, replacing Somalia. This year, Afghanistan has once again moved up into the group of the ten most vulnerable countries, meaning this group no longer consists exclusively of African countries.

+ Germany improved slightly by four places and now ranks 98th in the world with a risk score of 4.1, placing it in the middle of the global rankings.

+ The risk profile of many countries is shaped not only by extreme natural events and climate change but also by wars, conflicts, and uprisings. A special analysis based on the new Conflict Exposure Dataset by ACLED and WorldPop shows that Central and North Africa, South and Central America and South Asia are particularly affected by conflicts. Countries such as Colombia, Pakistan and Somalia each have high overall scores in the WorldRiskIndex and conflict exposure.

+ By integrating other types of risk, like conflict or epidemic risks, indices such as the WorldRiskIndex can contribute to more holistic assessments and comparisons of risks. However, such integration implies methodological and conceptual challenges and cannot be achieved without revising the theoretical framework.

Focus: Multiple Crises

+ Crises and risks are becoming increasingly complex and interconnected. Extreme weather events, conflicts and pandemics overlap and amplify each other. Global trends such as climate change, population growth and political polarization promote multiple crises and intensify their effects.

+ Multiple crises can occur in different patterns and their impacts can be felt at the individual, regional and global levels. Holistic and anticipatory approaches are necessary to manage their far-reaching consequences and to address the complexity and interconnectedness of the risks.

+ The global water crisis shows how climatic changes are harming people, agriculture and nature. Heavy rainfall, storms, floods, droughts and crop failures are on the rise. As a result, food security is declining worldwide, which can lead to health problems, regional conflicts and displacement.

+ Existing risk analysis methods often focus on single drivers of risk and are limited when assessing compound risks. Innovative *compound risk analysis* methods address the complex interactions between several hazards and consider the multidimensionality of vulnerability and exposure.

+ Integrating comprehensive analytical techniques into practice and translating the findings into actual humanitarian measures remains a challenge. Closer collaboration between data scientists and humanitarian practitioners is needed.

+ Disasters resulting from extreme natural events can trigger or escalate armed conflicts, especially when poverty, ethnic exclusion, past political violence or weak state institutions are already present.

+ Disasters can reduce the risk of conflict by weakening the resources and mobility of the government and insurgents. (Inter)national attention can also motivate non-violent solutions.

Rank	Country	Risk
1.	Philippines	46.91
2.	Indonesia	41.13
3.	India	40.96
4.	Colombia	37.81
5.	Mexico	35.93
6.	Myanmar	35.85
7.	Mozambique	34.44
8.	Russian Federation	28.12
9.	Bangladesh	27.73
10.	Pakistan	27.02
11.	Peru	27.01
12.	Papua New Guinea	26.35
13.	Madagascar	24.80
14.	Somalia	24.64
15.	Yemen	24.47
...		...
98.	Germany	4.10
...		...
179.	Malta	1.03
179.	Slovakia	1.03
181.	Nauru	1.02
182.	Denmark	0.98
183.	Hungary	0.95
184.	Bahrain	0.94
184.	Qatar	0.94
186.	Singapore	0.80
187.	Belarus	0.76
188.	Liechtenstein	0.71
189.	São Tomé and Príncipe	0.67
190.	Luxembourg	0.61
191.	San Marino	0.35
192.	Andorra	0.28
193.	Monaco	0.18

Figure 2:
Excerpt from the WorldRiskIndex 2024

1 Multiple Crises and Disaster Risk Management

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Bündnis Entwicklung Hilft

Katrin Radtke
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Crises are becoming more complex and increasingly interlinked. Extreme natural events such as heavy rains, heatwaves and droughts intersect with pandemics and conflicts, which can exacerbate their effects and lead to growing poverty and inequality. Traditional methods of crisis management are often inadequate, as many crises can no longer be addressed in isolation. The WorldRiskReport 2024 examines disaster risk management in this context and offers approaches for preventing and managing multiple crises.

Crises and risks are often complex — that is nothing new. There have always been situations in which extreme natural events have occurred in conflict regions or health risks have arisen in the context of extreme natural events. Currently, however, the complexity and interconnectedness of crises is increasing.

Centennial floods, extreme hurricanes, heat and cold waves, droughts, pandemics, the war in Ukraine, conflicts, death and violence in Gaza, South Sudan, Ethiopia, and many other countries — one crisis follows the next. The effects of individual crises intersect, combine, and sometimes even amplify each other. In countries such as Syria, Yemen, South Sudan, and Mozambique, the Covid-19 pandemic overlapped with disasters resulting from extreme natural events, some of which were caused by climate change. It has also exacerbated existing chronic conflicts and food insecurity in some of these countries. The global impact of Russia's war of aggression against Ukraine has further exacerbated this situation.

Climate change is increasing the frequency and intensity of extreme natural events, leaving less and less time for regeneration. As soon as one disaster is overcome, the next threat is already looming. In our interconnected world, the increased frequency of events is leading to ever more frequent overlaps and connections between crises.

This has led to an increase in poverty and social inequality around the world. In the face of multiple crises, targets such as those set out in the Sustainable Development Goals or the Sendai Framework for Disaster Risk Reduction 2015-2030 are at risk. The toolbox currently available for dealing with individual crises seems largely outdated, as most crises cannot (or no longer can) be addressed through monocausal approaches. This leads to a sense of powerlessness and overwhelm at both the individual and political levels. Consequently, many people become radicalized and begin to question democratic values.

This year's WorldRiskReport is dedicated to the topic of multiple crises and focuses on disaster risk management. As every year, the focus is on crises and disasters related to extreme natural events. However, these are not considered in isolation, but in their interaction and interconnectedness with other crises. What forms and characteristics of multiple crises can be distinguished? How do different levels of crisis — from the individual to the national, regional, and global level — interact with each other? Which approaches have proven successful in managing complex crises? What can be done to prevent or contain them? And what methods, information, and data are needed to better describe, analyze, and anticipate multiple crises? By addressing these questions, we aim to provide concrete approaches for preventing and managing multiple crises and thus counteract the feeling of overwhelm.

Approaching the term "multiple crises"

In recent years, various terms have been coined to describe the simultaneity and interconnectedness of different crises, with more or less emphasis on individual aspects. Some of these

can be attributed to particular disciplines or traditions of thought, such as the term "complex emergency", which originates from the field of humanitarian action, or the term "polycrisis" from historical studies. The WorldRiskReport 2024 uses the term "multiple crisis". Originating in economics, it has several definitions. In the WorldRiskReport, we refer to "multiple crises" as a complex humanitarian crises constellation that encompasses economic, political, and socio-ecological crises, in line with the definition of the Institute for Peace Research and Security Policy (Hentschel et al. 2023).

We aim to provide a more systematic and holistic view of contemporary humanitarian crises and to show that in many humanitarian crises ...

... various risk factors come together, interact with each other, and can reinforce each other;

... the simultaneous and reciprocal influence of different risk factors leads to non-linear processes and increased complexity;

... a large number of different actors (across individual areas of society and/or humanitarian sectors) are involved in the emergence and management of crises.

The risk profile of multiple crises

Multiple crises can unfold in different ways and have different risk profiles. Conceptually, the following risk patterns can be distinguished, which in reality can also occur in a mixed form.

Systemic risks: The term systemic risk is used by the OECD, among others. The fundamental principle behind the systemic perspective is that society is made up of various subsystems, such as the healthcare system, the energy system, and the financial system. Systemic risks arise from threats that put systemically important institutions under pressure and have an impact on other systems beyond the system originally concerned. They are characterized by complexity and interdependence, cross-boundary nature, non-linearity, tipping points, and delays in regulation and perception (RIFS Potsdam n.d.; Renn et al. 2022).

Cascading risks: The idea of cascading risks is becoming increasingly important in the disaster risk literature. They arise from domino effects that can lead from one catastrophic event to the next (Girgin et al. 2019; Pescaroli / Alexander 2015). Examples include "Natural Hazards Triggering Technological Disasters" (NaTECH), such as the Fukushima earthquake, which led to a tsunami and then to a nuclear disaster. Similarly, the Covid-19 pandemic not only caused a health crisis with many millions of deaths, but also led to crises in the social, economic and financial systems worldwide due to the containment measures, such as school and business closures as well as travel and contact restrictions. The idea of cascading risks illustrates that even small events, such as the collapse of a single bank, can have a massive impact (UNDRR; UNU-EHS 2022, 14).

Compound risk: The concept of compound risk is particularly important in climate change research and in the context of anticipatory humanitarian action. It refers to the interaction of simultaneous or successive threats that, in combination, result in a disaster (IPCC 2012). These events are independent of each other and are not mutually contingent (Zaidi 2018). Examples include droughts coupled with extreme heat and low humidity, leading to an increased risk of forest fires, or natural hazards in the context of conflict, such as the earthquake in Syria and Turkey in 2023, or the drought in Ethiopia (see Article 2.2).

For all three risk patterns, existing vulnerabilities resulting, for example, from social or economic exclusion, social disparities, lack of healthcare, high levels of corruption and low government effectiveness, or a lack of investment in education and research, increase the risk for the affected societies (Ahamed et al. 2023).

The effects of multiple crises

The effects of multiple crises can be observed at a global, national regional, and individual level. The WorldRiskReport 2024 dedicates one specialized article to each of these levels.

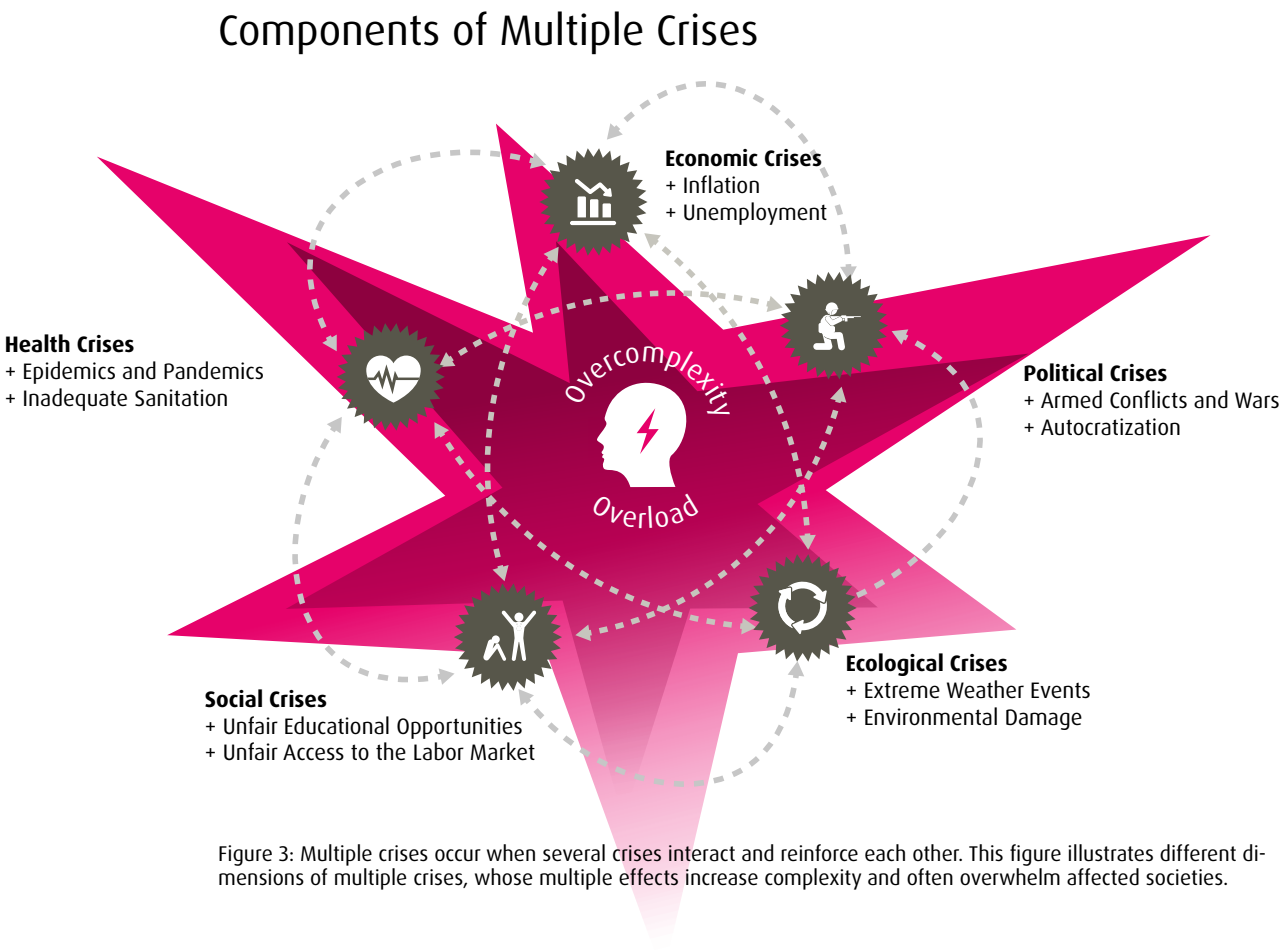

Figure 3: Multiple crises occur when several crises interact and reinforce each other. This figure illustrates different dimensions of multiple crises, whose multiple effects increase complexity and often overwhelm affected societies.

Due to globalization and worldwide interdependencies, crises that begin in one country or region can spread to other regions of the world. For example, the Ukraine war led to an increase in food insecurity in many regions of the world, as production losses in Ukraine, one of the largest grain exporters, caused grain prices to rise. The impact of the El Niño weather phenomenon (heatwaves and extreme drought) on rice production in India led to a halt in exports and rising rice prices in countries such as Senegal and the Ivory Coast. The interconnected effects of climate change at the global level are described in detail in Article 2.1, using the example of the water crisis: heavy rainfall, storms, and floodings are on the rise, as are droughts and failed harvests. The resulting food insecurity, in turn, can have (humanitarian) consequences far beyond the affected society, for example by exacerbating (regional) conflicts or forcing people to leave their homes. At the national and regional levels, weak governance, chronic conflict, and recurrent extreme weather events interact with and reinforce each other, making humanitarian action more difficult. Examples include the hunger crises in Ethiopia and Somalia, which are caused by prolonged conflicts and periods of drought. Article 2.2 examines the links between conflicts and extreme natural events, including the extent to which extreme natural events influence the likelihood of armed violence.

At the individual level, multiple crises can not only jeopardize livelihoods and future opportunities but also have a significant impact on (mental) health. During the coronavirus pandemic, psychosocial and economic stress increased worldwide. In countries that were affected by extreme natural events at the same time, these burdens intensified. One example is the Philippines, which was hit by 22 tropical cyclones during the Covid-19 pandemic, including Typhoon Goni, one of the strongest storms ever recorded. Hundreds of thousands of destroyed homes, overcrowded evacuation centers and the resulting increase in Covid-19 cases not only led to a dramatic increase in

humanitarian needs, but also had a negative impact on the mental health of the population (Rocha et al. 2021). Article 2.3 highlights these invisible effects of multiple crises at the individual level and emphasizes the importance of psychosocial support in times of multiple crises.

To counter these diverse effects of multiple crises in an effective and anticipatory manner, it is necessary to further refine the existing tools for the analysis of the complex risk profiles of multiple crises. The interaction of different risk drivers or their dynamic changes in the face of climate change are just two examples of common challenges in analyzing compounding risks. Article 2.4 presents promising approaches to compound risk analysis that address these and other methodological and practical challenges and aim to enable effective (anticipatory) humanitarian action in the complex settings of multiple crises.

Index models, such as the WorldRiskIndex, can also be an important component of more comprehensive risk assessments. Article 3 therefore begins by presenting the methodological approach, results, and limitations of the WorldRiskIndex. In light of this year's focus topic and the WorldRiskIndex's focus on extreme natural events, this is followed by a specialized evaluation of exposure to conflicts, which is intended to facilitate descriptive comparisons between exposure to extreme natural events and exposure to conflicts. Using conflict risks as an example, the article then examines potential methodologies and data sources as well as the theoretical and conceptual challenges that arise from integrating additional risk types into the WorldRiskIndex.

Prospects for the future

The negative impacts of climate change on global ecosystems, including biodiversity as well as water and food resources, will continue to intensify. In conjunction with increasingly frequent extreme weather events, this can have dramatic social and humanitarian consequences. The situation is exacerbated by the increase in political polarization and the amount of autocratic governments and decision-makers who do not prioritize sustainability and development. A holistic and anticipatory approach to risk management is necessary to prepare for future extreme natural events and their complex consequences.

Studies confirm current global trends that favor the emergence and intensification of multiple crises. In addition to climate change, population growth and unsustainable resource management, urban sprawl and increasing armed conflicts can harm our global ecosystem. The global risk landscape will therefore become even more complex in the future, and the driving forces of individual risk types may become even more adverse. The WorldRiskReport provides entry points to analyze where and how future overlapping crises will emerge and underlines the importance of sustainable and anticipatory disaster risk management.

The Concept of the WorldRiskReport

Figure 4: The WorldRiskIndex and its spheres

Concept of risk and approach

The risk assessment in the WorldRiskReport is based on the general notion that the emergence of a disaster depends not only on how severely natural hazards strike a society, but also on how vulnerable the society is to its effects (Bündnis Entwicklung Hilft 2011).

Risk assessment

The WorldRiskReport includes the WorldRiskIndex, which was developed by the Bündnis Entwicklung Hilft in cooperation with the United Nations University in Bonn and published for the first time in 2011. Since 2022, the Bündnis Entwicklung Hilft and the Institute for International Law of Peace and Armed Conflict (IFHV) of the Ruhr University Bochum, co-publishers since 2018, present the WorldRiskIndex in a fundamentally revised form. Disaster risk is calculated for 193 countries worldwide, based on the interaction between the spheres of exposure and vulnerability (Figure 4 above):

+ **Exposure** to earthquakes, tsunamis, cyclones, coastal flooding, riverine flooding, drought and rising sea levels

+ **Susceptibility** depending on socio-economic development, social disparities and deprivation, and the weakening of populations through violence, disasters, and disease

+ **Lack of coping capacities** related to social shocks, political stability, healthcare, infrastructure, and material security

+ **Lack of adaptive capacities** related to developments in education and research, reduction of disparities, investment and disaster preparedness

The WorldRiskIndex can only consider indicators for which comprehensible, quantifiable data are available. For example, while immediate neighborhood assistance cannot be measured in the event of a disaster, it is nonetheless very important. Furthermore, discrepancies in data quality between different countries may occur when data are collected only by national authorities and not by an independent international institution.

In addition to the data section, the WorldRiskReport always includes a focus chapter, examining the background and context from a qualitative perspective — this year's topic is "multiple crises".

The aim of the report

The presentation of disaster risks using the index and its two spheres shows the disaster risk hotspots around the world and the fields of action needed to achieve the necessary risk reduction on a quantitative basis. Complemented by qualitative analyses within the report, it is possible to formulate recommendations for action for national and international, governmental and civil society actors.

2 Multiple Crises

2.1 The Global Water Crisis – Amplifier of Multiple Crises Worldwide

Lisa Korte
Head of Humanitarian Action, Oxfam Germany

The water crisis is a central issue in the debate on the impacts of the climate crisis. This article examines the multiple dimensions of this crisis and its impact on human communities. A comprehensive analysis of research from the Intergovernmental Panel on Climate Change and the World Meteorological Organization reveals how the global water balance has fundamentally changed and will continue to change. This has far-reaching consequences for global water security. The article also highlights how increasing water insecurity amplifies other crisis factors such as food insecurity and displacement, making it a central factor in the emergence of multiple crises. It emphasizes the unequal consequences of this crisis for countries in the Global North and the Global South, and the responsibility of wealthy countries to take action to address it. The report also proposes concrete strategies for climate-resilient and sustainable water management.

The climate crisis is becoming increasingly evident around the world, and we are already experiencing its immediate impacts on water: floods, droughts, cyclones – according to the World Health Organization, 80 to 90 percent of the increasing number of extreme weather events on our planet are water-related (WHO 2012, 25). Research by the Intergovernmental Panel on Climate Change (IPCC) and the latest World Meteorological Organization (WMO) report on the state of global water resources illustrate how the global water balance has been and will continue to be fundamentally altered by climate change (Douville et al. 2021; WMO 2022a). This has significant implications, as the water cycle is critical to the health of the Earth's ecosystems and directly affects human life. Water is essential for human life in the form of drinking water, and also plays a critical role in agriculture, energy, and many other sectors. When water becomes scarce or, conversely, water masses cause destruction, it not only directly threatens the livelihoods of affected communities, but also exacerbates other crisis factors. The global water crisis is therefore a central element in the emergence and escalation of multiple crises.

Water

About
2.2 billion
people lack access to safe drinking water, a situation exacerbated by pollution and climate change-related droughts.
United Nations (2024a)

How the climate crisis affects our water resources

Water covers more than two-thirds of the Earth's surface. The Earth's total water supply is enormous, yet 97 percent of it is stored as salt water in the oceans. Less than two percent of the world's water supply is freshwater. Only a tiny fraction of this is available for human use: 96 percent of freshwater is stored in snow, ice, and permafrost, making it virtually inaccessible. Only a small remainder is available for water-related ecosystems and human use (Durack 2015). The functionality and ecological balance of many water bodies been significantly changed due to land use, pollution, and rapidly increasing human water consumption. While these are mostly small-scale interventions leading to local or regional changes in the water cycle, the climate crisis is causing large-scale, systemic changes in precipitation, evaporation, sea level, runoff, and groundwater recharge. This results in different, interconnected risk factors for people (Bender et al. 2017).

Oxfam (2023a) commissioned a study to examine these changes and associated risk factors in greater detail:

1. As temperatures rise, evaporation increases. At the same time, the warming atmosphere can absorb more water vapor. As a result, soils become drier, and inland water bodies shrink or dry up temporarily or completely. The reduction in surface water supplies increases the dependence on groundwater reserves in many places. If there is less rainfall in a region, or if heavy rains cause precipitation runoff, aquifers no longer replenish as usual, leading to water shortages.

2. Snow masses in the mountains and ice on glaciers are melting faster and faster and can no longer regenerate seasonally. As a result, the important storage effect of water reserves for the summer months is increasingly lost. This means that the melt water runoff that maintains the water levels of inland waterways during the dry months is diminishing.

3. Sea levels are rising due to increased melt water and greater expansion of water due to higher water temperatures. As a result, saltwater intrudes into aquifers in coastal regions, impairing their usability.

4. As water temperatures rise, water quality declines. Warming leads to higher nutrient pollution and increased algal blooms.

5. Extreme weather events such as heavy rainfall, droughts, and cyclones are increasing in intensity and frequency due to climate change. Since the soil has limited capacity to absorb heavy rainfall, especially after long periods of drought, flooding and erosion often occur. The ever increasing intensity of precipitation amplifies the runoff from land into water bodies, contaminating them with sediments, nutrients, and pollutants. In addition, reduced absorption prevents local aquifers from regenerating.

6. The seasonal regularity of precipitation, on which local agriculture, water storage, and management systems depend, is changing. Precipitation is becoming less frequent, less predictable, and more unevenly distributed.

Through these impacts, the climate crisis will further complicate access to clean water resources in many regions of the world and exacerbate the already existing global water crisis.

Water scarcity: Global crisis, unequal consequences

Although access to clean water has been recognized as a human right since 2010 and water plays a prominent role in the United Nations Sustainable Development Goals (SDGs), more than two billion people worldwide did not have adequate access to clean water in 2022 (United Nations 2024a).

Events such as the flooding of the Ahr valley in Germany and the extremely low water levels of the Rhine during the recent drought summers are increasingly raising awareness that climate-related disasters are on the rise, even in countries with comparatively low disaster risks such as Germany. This raises concerns that secure supplies of clean water could become problematic depending on the season and region. The latest IPCC status report confirms that all regions of the world will experience extreme weather events more frequently in the future and that the effects of the climate crisis on water resources are already being felt worldwide. However, people in the Global North are much better equipped to cope with these changes than those in the Global South. The IPCC emphasizes that people in economically disadvantaged countries are particularly vulnerable to climate hazards. It identifies the African continent, South Asia, and Central and South America as hotspots. In addition to poverty, governance issues, limited access to basic services, violent conflicts, and high dependence on climate-sensitive livelihoods such as small-scale agriculture, livestock farming, and fisheries contribute to the vulnerability of these countries (IPCC 2022a, B2.4).

A comparison of global physical water scarcity with global water security also highlights the unequal conditions that economically

Floods

Nearly one in

4

people will be directly exposed to the risk of a 100-year flood if global warming continues.

Rentschler et al. (2022)

*This term refers to floods that are so severe that they only occur once per century on average.

Interaction between Water Cycle and Climate Crisis

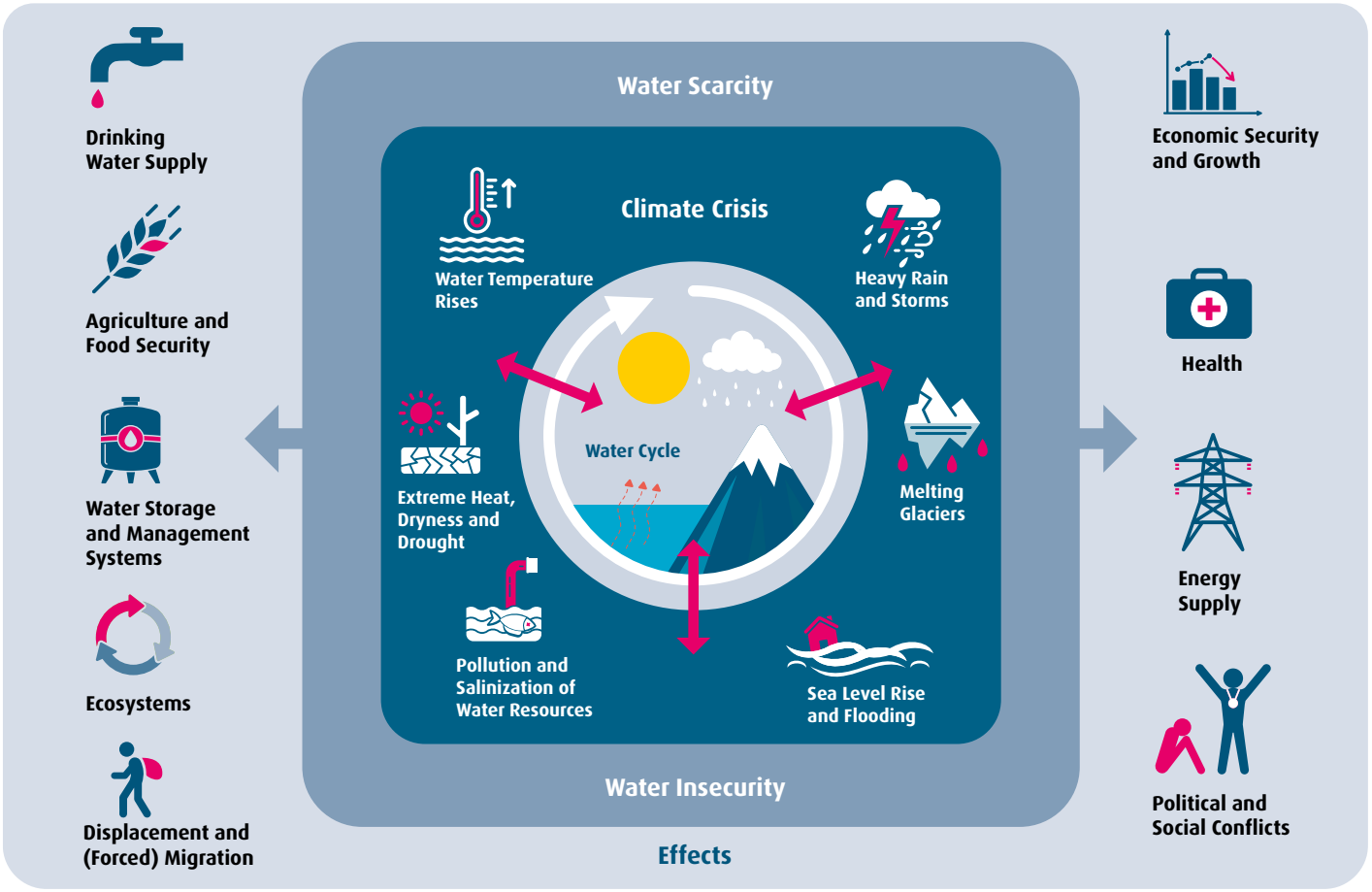

Figure 5: The figure shows how the climate crisis and the water cycle interact and the potential impacts of the resulting water insecurity and scarcity in different areas.

disadvantaged and privileged states face in dealing with the consequences of the climate crisis: The IPCC's latest status report emphasizes that the climate crisis is reducing the availability of water resources in many regions of the world, contributing to increasing water scarcity. The Water Scarcity Index (WSI) shows that northern, eastern, and southern Africa, the MENA region (Middle East and North Africa), but also the southwest of the USA, the Mediterranean states and Australia are particularly affected by physical water scarcity (Caretta et al. 2022, Box 4.1).

While the WSI considers only the relationship between water demand and availability, the Global Water Insecurity Index also takes into account water quality and socio-economic factors. According to the United Nations, water security is defined as "the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability" (UN-Water 2013). Consequently, the

results differ from those of the WSI. For example, the United States, Australia, and the European Mediterranean region appear to be water secure despite physical water scarcity, while regions in Central Africa, for example, that appear to have adequate water supplies according to the WSI are classified as water insecure (Caretta et al. 2022, Box 4.1). This highlights the much greater resilience of states in the Global North to the impacts of the climate crisis on their water resources.

Water insecurity and its impact on nutrition and migration

The rapid succession and increasing intensity of extreme events such as droughts and floods, as we have seen in recent years, drastically reduces people's ability to adapt to and cope with such times of crisis. This was most recently seen in the Horn of Africa, where in 2020, just three years after the last extreme drought in 2017, another drought was recorded – this time the most severe of the last 40 years. People had no time to recover and replenish their reserves. The drought also occurred in an environment already destabilized by crises: the socio-economic consequences of the Covid-19 pandemic, local conflicts and price increases caused by the Ukraine crisis combined in their effects. As a result, in 2023 more than 46 million people in the region faced acute food insecurity (IPC 3+) in 2023, a significant increase from the 2017 drought. The Global Humanitarian Assistance Report 2023 also confirms that vulnerability is increasing in economically disadvantaged states as their resilience and adaptive capacity erode (Development Initiatives 2023). In the context of growing vulnerability, increasing water scarcity and other water-related extreme events can trigger or exacerbate multiple crises: For example, water availability has a direct impact on food production.

Wheat, for example, a staple for much of the world's population, has been key to global food security. Forecasts from a study commissioned by Oxfam show that wheat harvests could be severely affected by changing climate conditions in the future. Calculations based on climate models suggest that wheat yields in West Africa could fall by almost 25 percent by 2025. The cultivation of corn, another important staple food, could also decline significantly in West Africa by 2050. At the same time, rice production in the region could be more productive than before. This shows that significant changes in local agriculture and its associated infrastructure and markets may be necessary to adapt food production to the changing water supplies, changing precipitation patterns, heat waves and other impacts of the climate crisis (Oxfam 2023b).

Increasing evidence shows that water crises have a reinforcing effect on migration and displacement. The number of refugees has increased rapidly in recent years: According to UNHCR, at least 110 million people worldwide were forced to leave their homes in 2023 (UNHCR 2024). The reasons for displacement and migration are complex, but studies confirm that water has become a major factor in the global causes of forced migration (Nagabhatla et al. 2020). Extreme weather, water shortages, and the threat to drinking water supplies are making entire regions uninhabitable. The United Nations assume that global migratory movements will continue to increase significantly as a result of extreme events such as floods and droughts, although the forecast figures vary widely. We are currently witnessing this development in the Horn of Africa: Somalia alone, more than 800,000 people have either fled or followed the water due to the recent drought and subsequent flooding. This can also be observed in the MENA region: water shortages, desertification, livestock mortality and crop failures are forcing more and more people, for example in southeastern Iraq, to migrate. The traditional inhabitants of the marshlands have already largely abandoned their homes due to advancing droughts and have migrated to nearby cities. However, the living conditions of these migrants are extremely precarious: they often live in newly emerging settlements without basic infrastructure and compete for few jobs in the informal sector. The extreme heat of recent summers has further turned these settlements into a hostile environment.

Droughts

55 million

people worldwide were affected by droughts in 2022. These lead to crop losses, water shortages and increased potential for conflict over scarce resources.

WMO (2022b)

Floods

Nearly

90%

of people at high risk of flooding live in low- and middle-income countries. Most live in South and East Asia, including 395 million people in China and 390 million in India.

Rentschler et al. (2022)

Ways out of the water crisis: The perpetrators bear the burden of responsibility

The examples cited here illustrate that people in the Global South are less well equipped to respond to increasing water scarcity, water-related extreme events, and the resulting multiple crises. These are key factors that lead to cascading risks – including food insecurity and forced migration as described above, but also resource conflicts and health crises. These factors not only exacerbate each other, but also increase vulnerability to the already perceivable impacts of climate change, making the situation in the states of the Global South even more dramatic compared to the states of the Global North. Accordingly, the climate crisis exacerbates existing social inequalities in the world. Inequality, in turn, also fuels the climate crisis: a report by Oxfam in 2023 estimated that the richest one percent of humanity produces as much greenhouse gas as the poorest two-thirds of the world's population – about five billion people – combined (Oxfam 2023c). Looking at emissions by country, rich industrialized nations have produced about half of all greenhouse gases since 1850. If the total greenhouse gas emissions budget compatible with the 1.5°C limit of the Paris Agreement were equally distributed among all people, industrialized nations would be responsible for more than 90 percent of the emissions, exceeding this limit. Against this background, the wealthy states of the Global North have a responsibility to contain the escalation of the global water crisis and work toward achieving SDG 6, "Access to water and sanitation for all."

To achieve this, all countries must drastically reduce their greenhouse gas emissions in order to limit the global temperature rise to 1.5 degrees. It is also necessary to increase investment in the water sector, particularly in sustainable and efficient water management in the countries most affected by the water crisis.

An important approach in this regard is the storage of rainwater and the retention of surface runoff. Water reservoirs and dams not only minimize flood risks, but also serve as reservoirs for dry periods. Early warning systems can alert populations to extreme climatic events, such as unusual heat or heavy precipitation, improving their ability to respond. These data-based early warning mechanisms can protect human lives and livelihoods, such as livestock and farmland. The WMO's "Early Warnings for All" initiative aims to protect everyone worldwide through such systems by 2027 through the expansion and coordination of comprehensive early warning systems.

Steps are already being taken to use the limited resource of water more effectively: In agriculture, wastewater that does not contain fecal matter, known as gray water, can be used for irrigation. In addition, drought-resistant plants and intelligent irrigation systems minimize water demand. The half-moon technique, in which rainwater is collected in semicircular basins to give it more time to seep into hard soil, can also help re-cultivate dried-out and hard soil.

Innovative, partly solar-powered technologies that can extract drinking water from even deeper layers of soil and treat raw water from contaminated and saline sources offer further ways out of the water crisis.

Concrete strategies for sensible water management in times of climate crisis must be developed, adapted to the specific context of the affected states and provided with sufficient financial resources. These measures are essential to counteract the growing scarcity of water resources and the increasing frequency of extreme weather events. In addition, this approach can also help to contain the further development of multiple crises triggered by water shortages or water masses.

2.2 The Catastrophes-Conflicts Nexus: On the Interlinkages of Disasters, Armed Conflicts, and Fragility

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Disasters and armed conflict zones frequently overlap, with factors such as climate change and persistent poverty amplifying this trend. Recent research shows that disasters increase the risk of conflict onset and escalation under certain conditions, such as weak institutions or high disaster vulnerability. Disasters can also shift the balance of power between conflict parties. However, the disaster-conflict nexus is not just unidimensional. When weakening the conflict parties, disasters can also facilitate a de-escalation of violence and open opportunities for aid delivery and diplomacy. Managing disaster risks in fragile and conflict-affected settings involves analyzing disaster risks in fragile states, designing conflict-sensitive disaster response and recovery, layering and sequencing support, and maintaining national capacities.

Disasters like droughts, earthquakes, floods, or storms pose significant challenges to human development. In 2023 alone, disasters killed more than 86,000 people, affected about 93 million people, and caused economic devastation valued at US$ 203 billion worldwide (EM-DAT 2024). Disasters are the result of a natural hazard like strong wind or heavy rain ("Exposure") hitting a society unable to cope with it ("Vulnerability"). Disasters have become more frequent and intense in recent years due to changes in the Earth system – a trend that is likely to continue in the future. This is because disasters are at the intersection, and often the result of multiple crises, including climate change, environmental degradation (e.g., groundwater depletion, soil erosion), persistent poverty, and the legacies of the Covid-19 pandemic (e.g., human development losses). Areas with a history of armed conflict are also particularly vulnerable to disasters, partly because key infrastructure can be targeted and destroyed during fighting, and partly because enacting disaster preparedness measures can be difficult in the midst of ongoing violence.

In line with these trends, disasters have been at the center of concerns regarding climate change and conflict (Peters 2018). But do disasters increase the risk of armed violence, and if so, what are the implications for disaster risk management and for achieving disaster resilience? These two questions are at the heart of our contribution and must be addressed in order to achieve the broader objectives of poverty reduction and sustainable development.

Background

Research has shown that environmental factors, including disasters, rarely influence militarized struggles between states (Mach et al. 2019). Similarly, it is well documented that disasters can trigger nonviolent conflicts such as protests, for example, by disaster victims angered by the lack of government preparedness and response (Ide et al. 2021). Here, therefore, we focus on conflicts in the form of organized armed violence that take place within states, most often in the form of civil wars.

In theory, there are two broad pathways that link disasters to a higher risk of conflict. First, disasters can cause grievances among the affected population. If directed against the government, angry disaster survivors may support a rebel group with information and goods, or even join the insurgents. Grievances can also motivate local militant groups to take up arms against political elites which they blame for insufficient disaster preparedness and relief. In Sri Lanka, for instance, the 2004 Indian

Conflicts

About
80%
of current humanitarian needs arise from armed conflicts.
European Council and Council of the European Union (2024)

Ocean tsunami exacerbated a pre-existing conflict between the government and the Liberation Tigers of Tamil Eelam (and their supporters) over the distribution of disaster relief (Ide 2023).

The second pathway relates to the opportunities that disasters provide for armed actors. Disasters strain governments by requiring military and financial resources for disaster response efforts, while tax revenues decline. Non-state actors can take advantage of such periods to initiate or escalate violence. Both government security forces and rebel groups may find it easier to recruit members among disaster survivors seeking an income. For example, pro-government militias in the Philippines see significant membership increases after disasters (Eastin / Zech 2022). In such cases, it is clear that both pathways can occur simultaneously, as disaster-related grievances provide opportunities for conflict parties to recruit new members.

Disasters increase armed conflict risks

While the evidence for specific cases such as the Syrian civil war (which was preceded by a severe drought) remains controversial (Dinc / Eklund 2023), twenty years of research has confirmed that disasters increase conflict risks. This is true for both the likelihood of armed conflict onset and the escalation of fighting in already ongoing conflicts. This effect is mainly due to changes in opportunity structures, which enable armed groups to recruit new members or to exploit the preoccupation of other conflict parties with disaster management. While disaster-related grievances are common, they tend to result in local protests and riots rather than intense armed struggles (Ide 2023; Ide et al. 2020).

However, this finding comes with two important limitations. First, there is no automatic or deterministic link between disaster and conflict. Disasters increase armed conflict risks only under specific circumstances. Relevant context factors usually increase a society's vulnerability to disasters, its risk of experiencing conflict, or both. The exclusion of ethnic groups from political power, for instance, or from access to the policies and investments needed to support disaster risk reduction, can be an exacerbating factor. This can increase polarization and recruitment opportunities for violence entrepreneurs after disasters. Simultaneously, marginalized ethnic groups have fewer options to achieve political change peacefully. Weak state institutions unable to mediate conflicts and to respond to disaster risks also make a disaster-conflict nexus more likely.

Poverty and a strong economic dependence on agriculture are other relevant contextual factors. Both leave a society more vulnerable to disasters, making grievances, recruitment of deprived survivors, and the weakening of state institutions more likely. Past political violence is generally a very strong predictor of future conflicts. If disasters weaken one conflict party, for instance by destroying the tax base of the government or by reducing the mobility of rebel groups, the other conflict party often escalates fighting to capitalize on the opportunity. Thus, a disaster-conflict nexus is much more likely to manifest in Ethiopia, Iran, or India rather than in, say, Canada or Sweden (Ide 2023; Ide et al. 2020; von Uexkull et al. 2016).

Second, disaster-conflict linkages are not unidimensional, but can operate in both directions. Put differently: Disasters can also reduce the risk of conflict. A well-delivered and inclusive disaster response can improve the image of the government, making violent rebellion less likely. Disasters also put a country or region in the spotlight of national and international attention, incentivizing conflict parties to settle their differences non-violently in order to cultivate their image.

Finally, disasters can strain the resources and mobility of government security forces and insurgents. While such declines in violence are temporary, they can offer windows of opportunity to restart negotiations (Ide 2023; Walch 2018). After the 2004 tsunami in Aceh, Indonesia, support for peace negotiations grew on both sides, also due to pressure from public attention and international donors. The resulting peace agreement, signed nine months after the disaster, ended the conflict between the

government and the separatist rebels permanently (Tunçer-Kılavuz 2019).

Disaster risk management in fragile and conflict-affected settings

Fragile and conflict-affected settings (FCS) are those where the risk of armed conflict is high, where fighting (whether large-scale or low-intensity) continues, or where the negative effects of political violence persist. As discussed above, disasters can exacerbate or instigate tensions. Therefore, disaster risk management in FCS is a worthwhile approach and increasingly necessary in the face of climate variability and change, pervasive poverty and the worrying trend towards more frequent and protracted conflicts (UNDRR 2023a). In the policy sphere, progress towards the Sendai Framework for Disaster Risk Reduction 2015-2030 has been slow for FCS. The mid-term review of the implementation of the Sendai Framework (United Nations 2023) found that while improvements have been made in understanding structural risk drivers in protracted crises, and specifically the interaction of violence, conflict and disaster risk, actionable disaster risk management in conflict and post-conflict settings remains challenging.

Efforts to advance disaster risk management (and humanitarian action in general) in multiple crises contexts have been varied, including under the impetus of the humanitarian-development-peace nexus. Studies call for enhanced integration of disaster risk management into sector and cluster priorities, greater recognition of the disaster-conflict nexus, and the inclusion of disaster resilience and conflict sensitivity in "build back better" approaches (UNDRR 2023a). It is also crucial to mobilize resources, with an emphasis on layering and sequencing of funding to reflect the differential viability of disaster risk management in volatile conflict settings and to link actions to longer-term development strategies (UNDRR 2023b).

To illustrate operational experiences in disaster risk management in fragile and conflict-affected settings, we now examine the World Bank's efforts to promote resilience in Yemen: Yemen's prolonged conflict has led to one of the worst humanitarian crises globally. As of 2023, a staggering 80% of the population is in dire need of humanitarian assistance – the conflict has claimed more than 100,000 lives and created one of the world's largest displaced populations. The country's GDP has shrunk by roughly 40% since 2015, with estimated reconstruction costs between US$20-25 billion over five years, amounting to half of the GDP prior to the war.

Yemen's exposure and vulnerability to disasters has been harshly highlighted over the past two decades, with the nation at risk of severe floods, droughts, epidemics, storms, cyclones, and landslides. The floods of 2020 and 2022 were particularly destructive, causing estimated damages of US$117 million and over US$570 million, respectively.

In response, the World Bank has taken a multi-sectoral approach to resilience building. To address the disaster-FCV (fragility, conflict, violence) nexus, the World Bank has been involved in several projects to enhance disaster resilience in Yemen, while responding to urgencies of the conflict. One example is the Integrated Urban Services Emergency Project, a US$150 million effort to restore access to critical urban services in selected cities. The first component focuses on critical investments that can restore services in a short implementation period. The second includes capacity building activities to improve project implementation at local and central levels. The third focuses on contingency measures to improve the country's ability to respond to emergencies, recognizing that disasters, epidemics, or other emergencies may occur during the project period (World Bank 2017).

Such projects have focused on providing emergency support, preserving local service delivery capacity, and supporting vulnerable populations affected by crises. Key lessons from this decade-long engagement highlight the importance of flexible financing to support short-term employment, access to basic services, and emergency cash transfers to the most vulnerable populations in response to the food crisis, healthcare restrictions, as well as the disruption of basic urban services.

Disasters

14.5 million

deaths due to climate change are expected by 2050. The main causes will be droughts, floods and diseases.

World Economic Forum (2024)

Initially focused on emergency services support, the World Bank project has evolved to improve the quality of life for Yemeni citizens, particularly in the urban areas: In more than 15 cities, projects have transitioned from providing basic access to roads, WASH services, and energy to incorporating solar installations in critical areas, demonstrating a dynamic adaptation to the complex and shifting needs of Yemen's population amid ongoing conflict and frequent climate disasters.

Conclusion

In certain contexts, disasters can increase the risk of armed conflict, while political violence and fragility make places more vulnerable to disasters. A better understanding of these interlinkages is crucial to avoid vicious cycle of disasters increasing conflict risks, which in turn increase disaster risks (and so on). This is particularly acute given that both disasters and armed conflicts are fueled by, and in turn contribute to, multiple crises such as poverty, infectious diseases, environmental degradation, and political fragility.

Further work is required to integrate disaster resilience into peacebuilding efforts and to mainstream conflict and fragility concerns into disaster risk management. This knowledge could also facilitate disaster-related cooperation as a form of peacebuilding. To achieve this, the disaster risk reduction community can draw on a substantial body of research and operational experience, including methods to nuance disaster risk management in various contexts, such as high-intensity violence or lingering insecurity (Peters 2017; Peters / Holloway 2019; Peters et al. 2013). Focusing on local-level resilience and recovery mechanisms, designing flexible emergency response strategies, and preserving national capacity to ensure effective service delivery during and after conflicts have proven to lower disaster risks in FCS.

2.3 The Invisible Effects: Psychosocial Stress in Times of Multiple Crises

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The following article highlights the profound impact of multiple crises on women's mental health and well-being, as well as their ability to create perspectives for their lives and those of their families. In addition to the complex reality of life in states such as South Sudan, where they face not only armed conflict, but also food shortages and the consequences of extreme natural events, they are also up against significant emotional challenges. In these contexts, women in particular often struggle with restricted rights and opportunities, such as limited access to health services. This article shows how those affected remain resilient despite stress and highlights the central importance of trauma-sensitive and intersectional approaches for comprehensive crisis management. By focusing on the psychosocial impacts of multiple crises, this article adopts a micro perspective.

The work of many development organizations is increasingly taking place in contexts characterized by violence and high fragility, in which the state is unable or unwilling to adequately guarantee the basic needs of its citizens for security, education, health and self-development. The well-being, security and development opportunities of many people are under pressure from the interaction of multiple, interlinked crises. According to the OECD, fragility is the combination of risk exposure and inadequate coping capacities of the state [...] and/or communities to manage, absorb or mitigate these risks (OECD 2022). According to the OECD, 1.9 billion people live in fragile contexts. They make up 24 percent of the world's population and account for as much as 73 percent of the people affected by extreme poverty worldwide. In addition, societies affected by protracted crises and insecurity are often characterized by mistrust, trauma, and a culture of violence. These societal factors are amplified the more they coincide with health or food crises, shrinking habitats, and extreme weather events as a result of climate change. In these situations, many people seek protection and better living conditions outside their home countries. However, forced migration often results in the loss of established community structures and the unavailability of support mechanisms from the family and extended social environment.

South Sudan exemplifies how multiple, overlapping crises are shaping people's lives. Although the state gained independence from Sudan in 2011 after decades of civil war, people's lives in much of the country are still makred by ongoing violence and armed conflict. It is estimated that up to 2 million South Sudanese are internally displaced within their own country. Many refugees have been living in neighboring states for years, mainly in Uganda, Sudan, Ethiopia and Kenya. Since the outbreak of war in Sudan in April 2023, refugees have been returning to South Sudan. They arrive in regions that are characterized not only by conflict but also by great poverty. Social infrastructure facilities such as schools or health centers are not (sufficiently) accessible to the vast majority of the population. Low access to employment and the labor market contributes to low purchasing power and a lack of food security. The situation has been exacerbated by enormous price increases and hyperinflation, which have been greatly amplified by the war in Sudan. The consequences of climate change, including widespread flooding, have repeatedly destroyed harvests in recent years and have in turn contributed to more and more people being affected by food shortages. As a result, the number of undernourished people is reaching record levels.

Specific challenges for women and girls in multiple crises

Women and girls are disproportionately affected by crises and conflicts. Entrenched social norms create inequalities between the sexes, leaving them with little ability to influence political decisions. Women and girls have very limited access to social services, and their health care and education are usually not considered a priority by families.Women are often unaware of their rights and have limited economic opportunities. Partly because of this vulnerability, women and girls are exposed to an increased risk of gender-based violence. The United Nations Secretary-General's report on conflict-related sexual violence for 2023 documents widespread sexual violence such as rape and gang rape as a means of warfare, often with the use of armed force, in both South Sudan and Sudan. "Amid a worsening humanitarian crisis, sexual violence was used by all parties to punish and forcibly displace populations. [...] Climate shocks led to increased competition for scarce resources, heightening the risk of intercommunal violence, including sexual violence" (UN 2024, 20).

Extreme poverty and food insecurity increase vulnerability to violence, especially among women. The UN Secretary-General's report states that in Afghanistan, high levels of displacement, extreme poverty and food insecurity exacerbate harmful coping mechanisms, such as forced and child marriages. In the east of the Democratic Republic of Congo, it is reported that armed conflicts led to a dramatic increase in sexual and gender-based violence in and around the displacement areas, where "[o]ngoing conflict and poverty drove displaced women and girls to forced prostitution as a means of survival" (UN 2024, 5). Given that health care is often extremely inadequate in fragile contexts, women have virtually no access to emergency medical and gynecological care if they have experienced sexual violence. Their physical and reproductive health is massively compromised due to often severe injuries and difficult hygienic conditions.

Sexual violence against women in war and conflict situations has serious consequences not only for the physical but also for the psychological and social health of those affected. These "invisible" injuries are often referred to as trauma, using the Greek word for wound. Overwhelming experiences of violence exceed the ability to cope. Experiences of violence involving other people are particularly serious, deeply shaking trust in other people and destroying social relationships. Fear, shame, mistrust, and withdrawal from the social environment are often the result. As a means of warfare, sexual violence aims to destroy entire communities. Rape, involvement in war and and childhood (sexual) abuse have been identified as the three most pathogenic traumatic experiences (Lindorfer 2007). Because sexuality, and even more so sexual violence, are taboo in many cultures, affected women avoid talking about their experiences of violence in order to avoid further humiliation and social stigma. This in turn makes it more difficult to activate coping capacities.

Mental health as a prerequisite for successful development and social participation

The World Health Organization defines mental health as "a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community. [...] Mental health is [...] crucial to personal, community and socio-economic development" (WHO 2018b). People whose mental health is impaired due to traumatic experiences of violence often feel unable to cope with the normal stresses of everyday life. Their ability to shape social life and work can be severely limited. Individual experiences affect relationships, which in turn also limits the community's ability to recover economically and socially. Traumatized people cannot (sufficiently) commit themselves to peace, development, and social cohesion. Experiences of violence are repeated and passed on within the family and community. Studies show that in the context of armed conflicts, the frequency of domestic violence increases (Noe / Rieckmann 2013). Psychosocial stress is therefore not only a

consequence of multiple crises but can in turn intensify existing crises by undermining coping capacities and passing on experiences of violence.

Different needs and coping capacities

There are great differences in how people respond to the experience of violence and disaster. In its 2007 "Guidelines on Mental Health and Psychosocial Support in Emergency Settings," the Inter-Agency Standing Committee (IASC) emphasized that people in emergency situations are affected in different ways and require different types of support (IASC 2007). The IASC recommends a multi-layered system of complementary support measures that meet the needs of different groups. Factors such as the degree of individual impact, personal experience of previous crises, the availability of support from others, and cultural background and traditions determine the coping capacities of individuals and entire communities. Age and gender are influencing factors as well: women in conflict areas are more likely to develop depression than men, and this probability increases with age (Charlson et al. 2019). People who do not have sufficient resources to meet their basic needs are more likely to develop trauma, anxiety, and depression, especially if they live in regions affected by war or violence.

However, not all people who are exposed to traumatic events develop serious problems that have a long-term impact on their daily lives and relationships. Current research assumes that around 22 percent of people living in war and crisis zones develop symptoms of a mental illness such as depression, anxiety- or post-traumatic stress disorder. About 5 percent of these cases are so severe that they require specialized support (Charlson et al. 2019). Conversely, this means that the vast majority of those affected can overcome traumatic experiences if they receive stabilizing services such as a safe environment, basic care, and accessible psychosocial services.

Psychosocial support and trauma-sensitive assistance

Psychosocial support services provide an important starting point for countering the vicious circle of mutually reinforcing risks and effects of multiple crises. They focus on individual well-being, but also offer support in restoring successful relationships and social interactions, for example within the family or community. Psychological first aid includes humane measures such as listening without forcing people to speak, comforting people, and creating an environment in which those affected feel comfortable and safe (IASC 2007). Survivors of traumatic events often feel great relief when they can understand the origin of their symptoms. Certain perceptions and behaviors can frighten and overwhelm those affected if they cannot classify or defend themselves against them. These include, for example, recurring memories (in flashbacks or nightmares), concentration problems, anxiety, aggression, or depression. Women in western Kenya who were victims of inter-ethnic and gender-based violence suspected that they were being bewitched or possessed by evil spirits. Through psychoeducation, they were able to understand that the symptoms they were experiencing were a normal reaction to events that were outside normal human experience – a formula that is intended to help "acknowledge the severity of the traumatic experience and to make it clear that traumatic events cause symptoms in almost everyone" (Lindorfer 2007, 200). This enabled them to regain a sense of control. Approaches that focus on the survivors' resources supported the women in perceiving themselves as survivors of violence. Rather than seeing themselves as victims in need of help who had everything taken away from them, they learned to understand that they had strengths and resilience. Even in situations of extreme despair and dejection, people and communities have skills and strategies to cope with adversity. Building on these is at the core of psychosocial programs that aim to increase the resilience of individuals and communities. Support services must be

Health Risks

Over

90%

of people living in cities breathe air that is harmful to their health, which is largely caused by the burning of fossil fuels.

WHO (2018a)

designed in a trauma-sensitive manner so that people can regain control over their lives and self-esteem.

Integrated approaches to mental health, peacebuilding, and development

In the face of everyday stressors, such as living in refugee camps with no privacy, no means of economic livelihood, and no hope for the future of their families, the struggle for daily survival is seen by many victims of violence as at least as problematic as the traumatic experiences themselves. Those who cannot ensure their own survival and that of their children due to great economic hardship have no opportunity to focus on their own recovery and to commit themselves to community cohesion in the long term. Mental health and psychosocial well-being go hand in hand with the resumption of normal everyday activities and life patterns that give people a sense of security and continuity. Results of a study on humanitarian programs for psychosocial support and trauma healing in the years 2014 to 2018 in the Greater Upper Nile region in northeastern South Sudan show a positive correlation between psychosocial support and openness to peace work (Balatti / Johnson 2022). In a study on the relationship between post-conflict trauma, peacebuilding, and economic development in northern Uganda, (Tankink et al. 2022) show that psychological recovery, reconciliation, and economic development are closely linked and require an integrated and multisectoral approach. They conclude that "for reconciliation and sustainable peace, the material and economic aspects, as well as the psychosocial and mental health dimensions of people's postconflict experiences need to be addressed."

In order to promote long-term peace and reconciliation, it is necessary to address the impact of traumatic experiences of violence on mental health and psychosocial well-being, as well as the causes of the daily (economic) struggle for survival. People who are supposed to invest in the future need hope that there is a future for them and their community. Economic reconstruction and development prospects are only possible if people can overcome their traumatic experiences and ensure that their intense fear and low trust do not prevent them from working with other people. In the face of multiple, overlapping crises, people's needs are complex. Well-being has many dimensions. A holistic approach should be adopted, combining psychosocial support with measures to improve livelihoods. It should enable people to rebuild their lives, for example through income-generating measures, or to resume interrupted education.

Disasters

26.4 million

cases of internal displacement could be attributed to disasters in 2023. 77 percent are due to weather-related causes.

IDMC (2023c)

2.4 Perspectives on Compound Risk Analysis

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Natural hazards and humanitarian crises are becoming increasingly frequent and complex, emphasizing the need for innovative disaster risk management approaches. Compound risk analysis *examines the intricate interactions among multiple hazard drivers, exacerbating socio-economic and environmental vulnerabilities. This holistic approach assesses the combined impact of multiple hazards on communities and ecosystems, unlike traditional risk assessments that often overlook the interconnectedness and synergistic effects of compound hazards and multidimensional vulnerability and exposure. However, challenges such as data integration and modeling uncertainties remain. Interdisciplinary collaboration and strategic partnerships are essential for overcoming these challenges, leading to more effective disaster preparedness, anticipatory actions, response, and recovery efforts, and ultimately building resilience to evolving hazards.*

In an increasingly interconnected and complex world, understanding compound risks has become crucial, as highlighted by events such as the Covid-19 pandemic occurring alongside existing climate stressors (Phillips et al. 2020). In these situations, risks manifest more frequently as compound, cascading, and systemic challenges, highlighting the need for *compound risk analysis* (Gong et al. 2022). The concept of "Multiple Crises," where various environmental, socio-economic, and geopolitical challenges converge, further underscores this need, complicating modern risk landscapes.

According to the Intergovernmental Panel on Climate Change (IPCC 2022b), compound risks "arise from the interaction of hazards, which may be characterized by single extreme events or multiple coincident or sequential events that interact with exposed systems or sectors". Compound hazards are not merely overlapping events but involve a logical interconnection between them. This results in a "cyclical process" in which compound disasters occur as hazards and interact with multidimensional vulnerabilities. Compound risks can exacerbate vulnerabilities within communities, weakening their resilience to future disasters.

One example is Super Typhoon Goni, which struck the Philippines in November 2020, affecting some 68.8 million people. The Philippines is home to many low-income families, many of whom live in vulnerable coastal areas. The corona pandemic exacerbated their vulnerability. As many evacuation centers were overcrowded and compliance with social distancing measures were difficult to maintain, the pandemic increased the risk to people affected by the typhoon.

The combination of multiple drivers and hazards, alongside varying levels of vulnerability and exposure, contributes to severely increased risks including socio-economic and environmental risk. Drivers of compound risk may include processes, variables, and phenomena across various domains spanning over multiple spatial and temporal scales, from floods and pandemics to violent conflicts and droughts, posing alarming challenges for humanitarian efforts. To address these challenges effectively, a holistic analysis approach is needed, integrating various methodologies and tools to assess the combined effect of multiple hazards on communities and ecosystems (Pescaroli / Alexander 2018). This comprehensive approach supports proactive measures, including anticipatory action (Semet / Burakowski 2022), to mitigate the impact of compound risks and strengthen community resilience. While this article primarily addresses *compound risk analysis*, its interconnectedness with other assessment methodologies, such as systemic risk assessment, as outlined in the Global Assessment Report 2019 (UNDRR 2019) and

subsequent works (Sillmann et al. 2022; AIDR 2021), is acknowledged. Future discourse could benefit from examining how systemic risks propagate and interact with complex systems.

The limitations of existing risk assessment tools in the light of multiple crises

Most studies analyzing the impacts of extreme events focus on a single driver. Despite numerous attempts to evaluate the risk of multiple hazards, existing methods display significant limitations in dealing with compound hazards. Large-scale risk assessment tools such as the European Union's *Applied Multi Risk Mapping of Natural Hazards for Impact Assessment* (EU's ARMONIA 2004), consider spatial overlaps but treat hazards as independent entities. Hence, a clear need for common standards and cross comparable methods for assessing compound risks is evident. The combination of hazards significantly increases the impact, yet the complexity of combining extreme events makes the magnitude, intensity, and impact of compound hazards difficult to predict, especially with the frequent lack of historical data on similar compound events.

Gong et al. (2020) propose the use of the Variable Fuzzy Set and Information Diffusion Method (VFS-IEM-IDM) to assess the probabilistic risk of compound hazards. This method accounts for the interrelations between hazard drivers while considering the temporal dynamics of compound hazards occurrences. *Compound risk analysis* methods, such as VFS-IEM-IDM, require extensive and high-quality data on exposure and vulnerability. However, such data may be scarce, incomplete, or of varying quality, particularly in regions with limited resources or data collection infrastructure, leading to uncertainties and biases in the analysis results.

In addition, the risk of compound hazards can be influenced by non-stationary behavior, meaning certain attributes of data variables change over time due to factors such as climate change. Compound event indices like the *Compound Drought and Heat Index* assume stationary hydrological and meteorological processes. However, anthropogenic greenhouse gas emissions have led to climate change, necessitating the incorporation of non-stationarities in hydrometeorological modeling.

Despite the availability of historical records of individual events, insights into future occurrences are often incomplete. The challenge with historical data lies in its recording of events as isolated occurrences, overlooking their evident compounding behavior. Systematic analyses are needed to understand how past events were related and to better model future combined hazards. Non-stationarity must be considered when performing frequency analysis and estimating the probability of compound events. Thus, creating models with time-dependent parameters and understanding potential trends in each driver are necessary for effective *compound risk analysis*.

For example, in regions such as the Sahel in sub-Saharan Africa, droughts have historically occurred at irregular intervals, with some areas experiencing severe droughts every few decades. However, climate change has increased the frequency of droughts and intensified and spread their impacts (Ayugi et al. 2022). This shift represents non-stationary behavior, where the patterns and characteristics of events change over time. Advances in global and regional climate modeling provide extensive simulations to assess non-stationarity and its interrelationships. However, it remains a challenge for modelers to access all the information necessary to reliably predict how hazards will evolve and risks will materialize.

Various mathematical models have been utilized to incorporate non-stationarity in predictions, such as for epidemics (Ionides et al. 2006). For instance, Jain and Lall (2001) used moving window regressions to evaluate non-stationarity in flooding events over time. Moving window regressions involve performing regression analysis over a subset of data within a specific time window and then shifting this window forward through the dataset. This approach allows the model to capture and

adapt to changes in the relationship between variables over time, making it particularly useful for estimating time-varying relationships and identifying dynamic behaviors and underlying processes. Despite these efforts, incorporating non-stationarity into predictions remains difficult (Wilmking et al. 2020). There is still little guidance on how to account for the non-stationarity of climate drivers in *compound risk analysis*.

Ways forward: methodological diversification

A bottom-up approach to *compound risk analysis* can help identify the hazards and drivers with the most significant impact (Culley et al. 2016). This approach examines the underlying mechanisms and drivers of compound risks, starting from the impacts of disasters and tracing back to the contributing factors (UNDRR 2022). In Vietnam, particularly in the Gianh river watershed, flooding is one of the most frequent disasters. Nguyen et al. (2023) present a bottom-up approach based on hydrodynamic modeling, starting with assessing the adaptive capacity of the population to manage flood risk through interviews with 298 inhabitants. Flood risk management was analyzed by combining flood risk mapping and adaptive capacity to compute comprehensive flood risk, incorporating hazard, exposure, and vulnerability using hydrodynamic modeling and the Analytic Hierarchy Process method. This approach has clear advantages for compound events: It focuses on the combinations of hazards and drivers and their distribution that can lead to system failure, as well as the likelihood of those combinations. Additionally, by highlighting all contributing factors, it reduces biases in perspective.

Various analytical approaches have emerged to address compound risk, each offering unique methodologies and tools to tackle the complexities of interconnected hazards. One approach involves integrating diverse data sources and advanced analytics to assess the combined effects of multiple hazards on communities and ecosystems (Fakhruddin et al. 2022). Another approach focuses on scenario-based modeling and simulation techniques, allowing the exploration of different scenarios and their potential impacts (Sadegh et al. 2018). By simulating various combinations of hazards and their interactions, this approach helps identify critical thresholds for intervention, guiding strategic resource allocation and potentially facilitating increased anticipatory action. However, scenario-based models involve complex mathematical models and require substantial computational resources for simulations and analyses, making them resource-intensive and time-consuming and thus less accessible or feasible in certain contexts.

Compound risk analysis involves uncertainty due to the complexity and interconnectedness of hazards and drivers. Methods like Bayesian networks, which learn from data to make probabilistic assessments of current and future risk, and fuzzy logic, which attempts to quantify and manage uncertainty, can still be sensitive to the choice of input parameters, modeling assumptions, and expert judgments, potentially affecting the reliability and robustness of the analysis results (Naseri / Hummel 2022). Nevertheless, ongoing advancements in the field present promising prospects. Notably, the forthcoming disaster losses and damages tracking system, developed by UNDRR, UNDP, and WMO, will play a crucial role in recording compounded events, providing invaluable data for more accurate risk assessment and management strategies (UNDRR 2024). Such methodologies not only deepen our comprehension of compound risks but also provide actionable insights for enhancing disaster management and resilience-building efforts.

Risk indices and compound risks

Most compound risk indices face limitations when assessing compound hazards (UNDRR 2022; Kappes et al. 2012). The *INFORM Risk Index* stands out for its comprehensive assessment of risk factors, including exposure, vulnerability, and coping capacity, across multiple dimensions. While it provides valuable insights into humanitarian crises, the index – just like other risk indices too – has several methodological and data limitations affecting its comprehensiveness and applicability.

Conflicts

19.1 trillion

US$ was the total volume of the global economic impact of violent conflicts in 2023. In 2021, this figure was at 16.5 trillion US$.

Global Peace Index (2024)

Methodological limitations include the use of composite indicators, which may oversimplify reality and lead to simplistic policy conclusions. Interactions among dimensions are not quantitatively considered, potentially overlooking important dynamics between risk factors (Inter-Agency Standing Committee and European Commission 2024; Joint Research Centre 2017). Additionally, using proxies may limit the representativeness of certain phenomena, impacting the accuracy of risk assessment (Joint Research Centre 2014). Data limitations further hinder the effectiveness of such indices, as certain hazardous events such as landslides, forest fires, and epidemics are not included due to data availability and relevance considerations (Joint Research Centre 2014).

Additionally, the reliance on self-assessment reports for the disaster risk reduction component raises questions about reliability. Missing data also poses challenges, potentially distorting the composite indicator's real value and compromising its accuracy (Joint Research Centre 2017). Countries in conflict face additional reliability issues, and limitations in indicator sensitivity, and data updates affect the index's responsiveness. The static nature of the natural hazard category further complicates risk assessment, particularly in dynamic environments affected by population movements. These limitations underscore the need for ongoing refinement and adaptation of risk indices to enhance its utility and effectiveness in addressing complex humanitarian challenges.

Hunger

735 million

people suffered from hunger in 2022. That was 122 million more than in 2019. The reasons for the increase were the Covid-19 pandemic, frequent weather shocks and conflicts, including the war in Ukraine.

UNICEF (2023)

Conclusion and recommendations

Despite its benefits, *compound risk analysis* presents several challenges, including the complexity of integrating diverse data sources, uncertainties in modeling compound hazard interactions; and the need for interdisciplinary collaboration, expertise, and active stakeholder engagement to understand their perspectives, preferences, and risk perceptions, as well as the resource-intensive nature of conducting comprehensive assessments (Gardoni et al. 2016). Overcoming these challenges requires strategic partnerships among government bodies, private sector entities, humanitarian and development actors, research institutes, and affected communities. This collaboration should focus on refining data integration techniques, advancing modeling capabilities, fostering interdisciplinary research, and enhancing resource allocation strategies tailored to *compound risk analysis*. By leveraging the collective expertise and resources of these diverse stakeholders, significant progress can be made in developing and applying more precise and effective *compound risk analysis* methodologies.

In conclusion, *compound risk analysis* offers a holistic approach to risk management and humanitarian efforts. By addressing the compound impacts of multiple hazards and building community resilience, it plays a pivotal role in saving lives, preserving livelihoods, and fostering sustainable development amid increasing risks. However, realizing its full potential requires overcoming challenges, including translating large data models into actionable humanitarian interventions. Scientific data analysis of risk often lacks integration with concrete humanitarian project implementation. Bridging this gap requires close collaboration between data scientists and humanitarian practitioners, focusing on predictive capabilities and actionable outcomes with a clear understanding of timeframes, geographic scale, and data granularity. *Compound risk analysis* provides a pathway to enhanced disaster preparedness, anticipatory action, response, and recovery efforts, fostering resilience and supporting communities against the evolving landscape of hazards.

WorldRiskIndex Rank 56

Risk high		9.87
Exposure medium		1.37
Vulnerability very high		71.04

Democratic Republic of Congo (DRC)

Psychosocial support and mental health in North Kivu

Country profile

The Democratic Republic of Congo (DRC) is one of the largest countries in Africa, with a population of approximately 102 million (World Bank 2023a). Despite its rich resources, cultural diversity and impressive natural environment, the country's population suffers from multiple crises caused by historical, political, climatic, social and economic factors.

In particular, the armed conflict in North Kivu in the east of the country has persisted for decades and is characterized by land disputes, political instability, and historical tensions. Non-state armed groups finance themselves by looting resources, using rape as a weapon, and recruiting child soldiers. The country's geography, including the Congo Basin and the Congo River, increases its vulnerability to disasters such as floods, droughts, earthquakes, volcanic eruptions and disease outbreaks. Currently, 25.4 million people in the DRC (OCHA 2024) are in need of humanitarian assistance. Women, children, the elderly and people with disabilities are particularly affected by multiple crises, leaving behind a traumatized society.

Project context and project activities

As in most regions of the DRC, the formal public health system and health care providers are overwhelmed by the burden of ongoing and recurrent crises. Medical supplies and the necessary training to recognize and treat psychosocial conditions and disabilities are completely lacking, and people with psychosocial

Key Figures DR Congo

102.262.808
Inhabitants
World Bank (2023a)

35.3 %
Percentage of undernourished people
BMZ (2021a)

12 %
Share of population with access to clean drinking water
UN-Water (2022a)

6,900,000
Internally displaced people
IDMC (2023a)

conditions often suffer stigmatization, exclusion, and abuse.

To address these issues, CBM developed the project „Strengthening Psychosocial Healthcare in North Kivu with a Special Focus on Persons Affected by Ebola and COVID-19 and Victims of Sexual Violence" in co-operation with the Diocese of Beni-Butembo (DBB) and the Brothers of Charity (FRACARITA).

The project was launched in August 2020 during the Covid-19 pandemic and ended in October 2023. The overall objective of the project was to improve the quality of life of people suffering from the effects of multiple crises. To this end, the project addressed three levels of psychosocial health care:

1. The first level focused on prevention, such as awareness campaigns on the radio and in schools, informing the public about symptoms and where to find treatment centers. Beyond prevention, early detection of psychosocial stress was taught through training and specialized screening was offered in schools and remote areas.

2. If further treatment was needed after the initial assessment, people were referred to trained staff in the area. Specialized treatment, such as diagnosis and therapy by psychotherapists, then took place there, which is the second level of psychosocial health services.

3. Finally, service providers offering inpatient treatment for more complex mental illnesses formed the third level. The project supported these facilities by developing concepts, guidelines and schedules in order to achieve better coordination and networking between the levels.

In addition, there were project activities for self-help savings and credit groups. These groups enable people who would otherwise have no access to financial institutions to save and borrow money together. CBM and its partners supported the formation of the groups, trained savings group leaders in administration, and provided start-up capital.

The volcanic eruption of Mount Nyiragongo (2021) in the region posed a particular challenge during the project period and further worsened the living conditions of the population. In the context of project implementation, this meant a further crisis in an already existing crisis situation. Thousands of people lost their livelihoods. In response, project activities were expanded and adapted, including the deployment of mobile teams to the affected regions to provide first aid.

Results and effects

Prevention events and the general dissemination of information on psychosocial health increased the visibility and understanding of people with psychosocial challenges and encouraged survivors of sexual violence to seek support services. With trained staff and a more efficient system for coordinating and transferring patients between the three levels of psychosocial health services, patients now benefited from improved services and more comprehensive support. In addition, people with psychosocial conditions were now able to participate in savings and credit groups and receive loans that they would not have received from other financial institutions due to stigma. These loans were used for medicines and materials such as tools and technical equipment to implement new business ideas and create a long-term source of income.

To accompany all project activities, a feedback mechanism was set up that was accessible to all participants and offered various formats, such as a feedback telephone or barrier-free meetings. Among other things, it turned out that more people than expected, especially children, needed psychosocial support. As a result, project activities such as the training of teachers to promote the psychosocial well-being of pupils were expanded and a campaign against physical punishment in school was initiated. Overall, the project activities succeeded to mitigate the negative consequences of multiple crises and build psychosocial resilience to further shocks and crises.

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WorldRiskIndex Rank 78

Risk medium		5.72
Exposure medium		1.09
Vulnerability high		29.97

Sierra Leone

Empowerment of Women and Girls in the Context of Multiple Crises

Country profile

22 years have passed since the end of the civil war in the West African country of Sierra Leone in 2002. This period was marked by intense social, political, and economic reconstruction: poverty rates fell, food security increased, and the economy grew (World Bank 2020). However, the outbreak of the Ebola epidemic in 2014 and the Covid-19 pandemic have severely undermined these achievements, and Sierra Leone remains one of the poorest countries in the world (UNDP 2022).

Overall, Sierra Leone is representative of many states in the Global South, where several risk factors collide and reinforce each other, creating a latent state of crisis. Pervasive poverty and enormous social inequality-about 58 percent of the population lived in multidimensional poverty in 2019 (UNDP 2023)-increase the population's vulnerability to increasingly frequent and intense extreme weather events (Bangura et al. 2013). In addition, the climate crisis is exacerbating food insecurity through unpredictable rainfall patterns and prolonged droughts (Sesay / Kallon 2022; Kainyande 2024). Poor harvests drive rural populations to cities, where overcrowded settlements on steep slopes and along the coast are vulnerable to landslides and flooding (ACAPS 2017). Due to weak state capacities, especially in the areas of health, nutrition and social security, large sections of the population live in precarious conditions and are thus particularly vulnerable to the threat of environmental effects. Social discontent

Key Figures Sierra Leone

8.791.092
Inhabitants
World Bank (2023b)

27.8 %
Percentage of undernourished people
BMZ (2021b)

10 %
Share of population with access to clean drinking water
UN-Water (2022b)

3,000
Internally displaced people
IDMC (2023b)

and the inability of the political system to respond adequately to these issues lead to recurrent political unrest. The constant strain on Sierra Leone's state systems means that even small internal or external shocks can have cascading effects: individual systems would collapse like a house of cards, exposing the country's 7.5 million people to constant risk.

Women and girls are particularly vulnerable to the effects of multiple crises: their role as primary caregivers in families makes them more vulnerable to economic insecurity and puts them at increased risk of gender-based violence (Levine et al. 2023; Simba / Ngcobo 2020). Limited access to political participation, education, health care and social security means that women are among the most vulnerable groups in multiple crises and their socio-economic and health status is more severely affected. This leads to decreased resilience to future shocks. During the Covid-19 pandemic, women in Sierra Leone faced an even higher burden of unpaid care work, exacerbating their financial instability. Many women also lost their jobs in the informal sector, which is more susceptible to shocks. Meanwhile, access to reproductive and general health care has continued to deteriorate and cases of sexual and gender-based violence (SGBV) have increased sharply due to the lockdown measures (Levine et al. 2023; Simba / Ngcobo 2020). In particular, the mental health of women and young girls has suffered significantly as a result of this compounding burden.

Project activities

The work of the German Doctors (GD) in Sierra Leone therefore focuses on empowering women and strengthening the health system. On the one hand, this improves the mental and physical health of women, children and families. On the other hand, the promotion of gender equality leads to greater social stability and a sustainable reduction in the risk of violence and conflict. This strengthens the society's overall resilience to multiple crises in the long term. In the area of empowerment, GD supports the local organization Commit and Act Foundation (CAF), which runs a shelter for girls in Makeni. Survivors of SGBV are offered not only a first point of contact, but also medical, psychological and legal counseling. Through educational activities in families and communities and advocacy at the national level, CAF's "My Body My Right" project strengthens the rights of young women and girls to make their own decisions about their bodies and works to combat female genital mutilation (FGM). In addition, the "CHOICE" project improves girls' and women's access to sexual and reproductive health and rights (SRHR) services through training of health workers, peer learning and advocacy. Through awareness-raising activities "CHOICE" also reduces the occurrence of SGBV. Most recently, GD has become significantly involved in a pediatric training program in cooperation with the Sierra Leonean Ministry of Health. As part of a bachelor's degree program, 12 pediatric specialists are trained annually to help reduce child and maternal mortality.

Results and impacts

The pediatric training project and the collaboration with CAF focus on reducing the vulnerability of women and young girls in the health sector. The contribution of pediatric training to health care, especially in rural areas, is significant. With an average of three doctors per 100,000 people, health care for women and children is being strengthened nationwide. In addition, collaboration with CAF is improving the health system in the area of SRHR for women and young girls and strengthening their empowerment, contributing to the long-term reduction of SGBV and FGM. This, combined with the promotion of economic and social participation, strengthens the resilience of society as a whole by sustainably addressing gender inequalities, which often exacerbate the causes and effects of multiple crises, while simultaneously improving the resilience of those affected by further crises.

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3 The WorldRiskIndex 2024

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The WorldRiskIndex assesses disaster risks for 193 countries by evaluating their exposure to natural hazards, the susceptibility of the population as well as the coping and adaptive capacities of societies. This year's results highlight that Asia and the Americas remain the primary global risk hotspots. However, as climate change increases the frequency and intensity of extreme weather events, these global hotspots are anticipated to shift, affecting vulnerable societies in Africa in particular. Past disasters and ongoing conflicts can further undermine societies' ability to cope and adapt. Addressing the intersection of multiple crises, this chapter also provides insights into conflict-related risks and discusses the challenges of integrating different risk types into the WorldRiskIndex.

The year 2023 marked the hottest year on record (Copernicus Climate Change Service 2024). Alongside record global average temperatures, climate change has led to extreme weather events worldwide – from heatwaves in southern Europe to wildfires in Canada and devastating floods in Libya. The frequency, intensity, and number of people affected by such phenomena will continue to increase in the future due to the medium- and long-term effects of climate change. In addition to human-induced climate change, the El Niño phenomenon contributes to the occurrence of extreme weather events in many countries: While parts of Latin America and East Africa are affected by flooding, El Niño leads to droughts in the Sahel region. El Niño is a vivid illustration of how different risks and vulnerabilities interact: In countries such as Somalia, Ethiopia, and Sudan, El Niño-related extreme events lead to crop failures and internal displacement, exacerbating the already existing lack of coping capacities in these societies due to armed conflicts. Combined with restricted global grain supplies due to the war in Ukraine, El Niño also increased food insecurity in other parts of the world (Welthungerhilfe 2024).

However, whether phenomena such as El Niño and related extreme events ultimately lead to humanitarian crises depends not only on natural events but also on social capacities and resources. Disaster risk is particularly high where extreme events hit vulnerable societies. Based on this understanding, the WorldRiskIndex assesses latent disaster risks for 193 countries worldwide. As the example of El Niño illustrates, the index shows that the countries that suffer most from the consequences of extreme natural events are those that have lost important capacities for adaptation, disaster prevention and management as a result of conflict or previous disasters. The WorldRiskIndex thus underlines the central importance of societal capacities and resources in responding to shocks and crises and in mitigating the negative consequences of extreme events – especially when the driving forces of different risk types interact and reinforce each other.

The Concept of the WorldRiskIndex

The WorldRiskIndex is a synthesis of various discourses and studies on the phenomena of hazard, exposure, and vulnerability, considering their interaction as central to the emergence of disaster risks (Wisner et al. 2004). It is based on work by Bogardi / Birkmann (2004), Cardona (1999), Birkmann (2006), and Cardona / Carreno (2011), and draws on recent discourses on coping and adaptation (Davies 1993; Lavell et al. 2012) that emphasize the equivalence of

these driving forces. This distinguishes the WorldRiskIndex from earlier approaches (Cardona 2005; Peduzzi et al. 2009) that focus on vulnerability, exposure, and damage. The model highlights that disaster risks are shaped not only by the occurrence, intensity, and duration of extreme natural events, but also by social, political, and economic factors. This is based on the assumption that every society is able, within the scope of its capacities, to implement measures to develop and maintain effective disaster risk management frameworks to mitigate the impacts of extreme natural events and the adverse impacts of climate change.

The WorldRiskIndex assumes that the risk profiles of countries and regions will change in the medium to long term as a result of climate change, exposing them to new risks and hazards. This will require the development of new societal capacities. For this reason, the WorldRiskIndex model has been completely revised in recent years (Weller 2022). This revision allows a broader range of data to be incorporated into the risk analysis, while remaining flexible enough to quickly integrate new social aspects or hazard types. Given the previous focus on extreme natural events and climate change impacts, these revisions were limited to natural hazards and risks. However, the presentation of this year's risk analysis is followed by a brief outlook on exposures to war, conflict, insurgency, and violence to demonstrate the flexibility of the model and to discuss the limitations and challenges of permanently integrating multiple exposures and risks.

Calculating the WorldRiskIndex

The calculation of the WorldRiskIndex was optimized during the revision of the structure. The terms and definitions of the WorldRiskIndex (see info box) were aligned with the terminology of the United Nations Office for Disaster Risk Reduction (UNDRR 2022). The methodology has also been updated to make the selection of indicators and the calculation steps more transparent and reproducible. Currently, 100 indicators are included in the calculation of the WorldRiskIndex (see Figure 6). All indicators are derived from scientifically recognized and publicly available data sources such as the World Bank, UNESCO, and WHO. In addition, they must meet the model's strict requirements for content suitability, temporal completeness, and spatial coverage.

Even the most appropriate indicators often lack values for certain countries or regions. These areas would have to be excluded from the analysis, reducing the informative nature of the WorldRiskIndex. Therefore, plausible values for all missing data are estimated using robust algorithms (King et al. 2001; Honaker / King 2010). To maximize the plausibility of the estimated values, 150 additional indicators are considered alongside the primary indicators of the WorldRiskIndex. An ordered-quantile transformation (Bartlett 1947; Van der Waerden 1969) is then applied to the completed indicators to prevent distortions caused by skewed distributions or outliers. All indicators are then normalized to a value range of 0 to 100 (min-max normalization), with higher values representing worse circumstances or initial conditions. In the final step, these values are aggregated according to the structure of the WorldRiskIndex (geometric averaging) and rounded to the second decimal for ease of calculation. To facilitate interpretation, the values of individual spheres and dimensions are categorized into five classes. The thresholds for these classes were calculated based on the median of the quintile limits over the past 20 years.

As in the previous report, only the indicators of the vulnerability sphere have been updated. Recalculating the exposure sphere requires recent census data, which will only be available from the WorldPop Research Programme in the next few years. However, this has little impact on the results of the WorldRiskIndex, as it uses relatively recent hazard mapping that already considers the effects of climate change (see Dottori et al. 2016, Muis et al. 2016). Due to the combination of hazard and population mapping, significant changes in the exposure sphere generally unfold over longer periods of decades. More importantly, the update of the

vulnerability sphere not only incorporates current data but also adjusts the longitudinal dataset that was provided last year for trend analysis. As in previous years, all data is available on the WorldRiskReport website and the UNOCHA HDX platform.

Results of the WorldRiskIndex

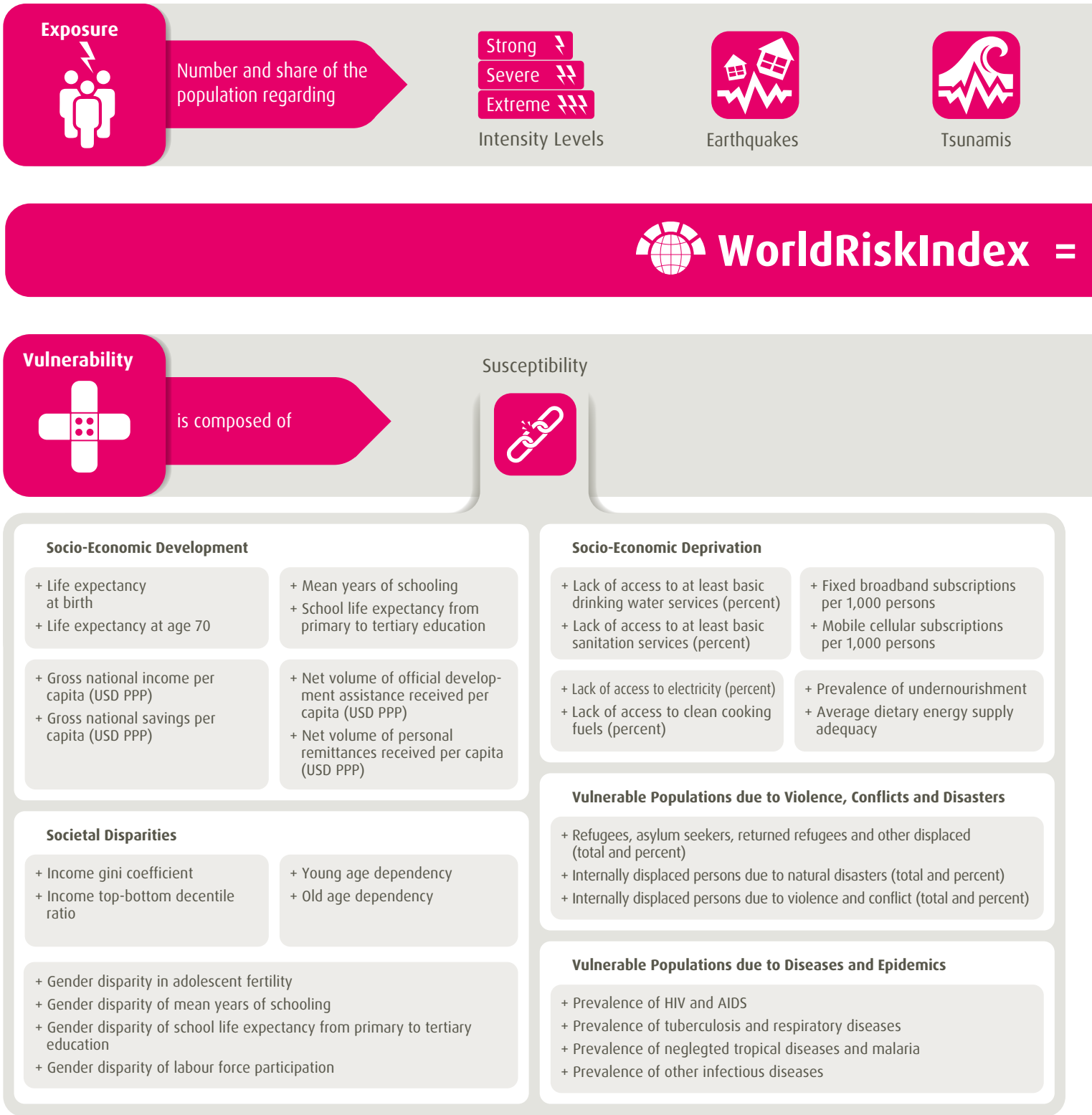
In recent years, the WorldRiskIndex has shown that global disaster risks are not only very heterogeneously distributed but are also closely linked to poverty and inequality. This persistence often results from robust interactions between increasing vulnerability and damage caused by extreme events. Countries with climate-sensitive exposure and high to very high vulnerability are particularly at risk. These countries can expect more frequent and more intense extreme natural events and damage in the future. A significant shift in global risk hotspots can therefore be expected in the long term. At present, however, the hotspots remain in the Americas and Asia, as can be seen in the group of ten countries with the highest risk scores: the Philippines, Indonesia, India, Colombia, Mexico, Myanmar, Mozambique, Russia, Bangladesh, and Pakistan. These countries have very complex risk profiles due to the combination of diverse exposures and high intensities, as well as higher vulnerabilities.

It is also worth noting that Pakistan, which was pushed out of the top ten by Russia last year, has now replaced China, while Mexico and Colombia have swapped ranks. The composition of the ten countries with the highest vulnerability scores is similar, with Afghanistan returning this year to a group that consisted exclusively of African countries last year. Within the group, Somalia is replaced in the rankings of highest vulnerability by the Central African Republic, South Sudan, Chad and the Democratic Republic of the Congo.

Focusing on ranked positions obscures the fact that higher exposures do not necessarily lead to higher risks. This has been illustrated in previous years by examples such as South Korea and Italy – or, to a lesser extent Japan and the USA – which have been able to reduce their overall disaster risks due to their medium to very low vulnerabilities. Similar effects can also be observed in the top groups: China's descent from rank 10 to 22 is the result of a significant improvement in adaptive capacities, which was achieved mainly by expanding and maintaining medical infrastructure (e.g. hospitals) in the context of the pandemic. In contrast, the Central African Republic, South Sudan, Chad, and the Democratic Republic of the Congo show that deterioration in the vulnerability dimensions does not necessarily lead to significantly higher overall risk scores due to their very low exposure.

Most of the changes compared to the previous year, and the emergence of new regional trends, can be attributed to phenomena with uneven and sometimes delayed global impact: In large parts of the global North, the gender-related, particularly economic, disparities that emerged during the Covid-19 pandemic have reduced. In much of Africa and Southeast Asia, however, this reduction is taking place at a much slower rate. The same applies to the immunization rates among children and adolescents. Another factor is that coping with the Covid-19 pandemic and the disruption of global grain supplies caused by the war in Ukraine have forced countries to take on more debt. This often results in efforts to consolidate government budgets, which not only entails cuts in areas of coping and adaptive capacities, but could also negatively impact susceptibility in the medium and long term. In addition, wars and conflicts in many regions of the world act as latent risk drivers. Their effects, such as forced migration and displacement, often shape the risk profile of a region for several years or even decades.

The Structure of the WorldRiskIndex



* These dimensions are not currently considered due to insufficient availability of indicators.

The unweighted geometric mean is used to aggregate the indicator values at all levels of the WorldRiskIndex.

Figure 6: The Structure of the WorldRiskIndex


Cyclones


Coastal Floodings


Riverine Floodings


Droughts


Sea Level Rise

√ Exposure × Vulnerability

Lack of Coping Capacities

Recent Societal Shocks

+ Population affected by disasters in the last 5 years (total and percent)
+ Population killed in conflicts in the last 5 years (total and percent)

State and Government

+ Control of corrpution
+ Rule of law
+ Government effectiveness
+ Political stability and abscence of violence and terror

Health Care Capacities

+ Medical doctors and practitioners per 1,000 persons
+ Nursing and midwivery personnel per 1,000 persons
+ Maternal mortality rate
+ U5 child mortality rate
+ Hospital beds per 1,000 persons
+ Current health expenditures per capita (USD PPP)

Infrastructure*

Social Networks*

Material Protection*

Lack of Adaptive Capacities

Educaction

+ Government expenditure on primary and secondary education per capita (USD PPP)
+ Number of teachers in primary and secondary education per 1,000 students
+ Gross enrolment rate in primary and secondary education

Research

+ Government expenditure on research and development per capita
+ Personnel in research and development per 1,000 persons
+ Gross enrolment rate in tertiary education

Long-Term Health and Deprivation Effects

+ Years lost due to unsafe water and sanitation sources
+ Years lost due to particulate matter air pollution
+ Years lost due to child and maternal malnutrition
+ Children without third dtp dosage (percent)
+ Children without third polio dosage (percent)
+ Children without second measles dosage (percent)

Investment Capacities

+ Gross fixed capital formation per capita (USD PPP)
+ General consumer price instability (rate)

Disaster Prepardness*

Climate Change Mitigation*

Potential and Limits of the WorldRiskIndex

The aim of the WorldRiskIndex is to raise awareness of the importance of societal capacities in anticipatory disaster risk reduction, to provide reference points for the prevention of humanitarian crises, and to support decisions in the prioritization and allocation of resources. The introduction of the longitudinal dataset provides users with new, deeper insights into structural factors and temporal dynamics, expanding the analytical potential beyond previous material. Since its revision, the structure of the WorldRiskIndex has been designed to allow for the rapid integration of new aspects. One focus in the coming years will be to use this potential by developing models for new types of hazards, such as heat and cold waves or landslides, and by incorporating new aspects of vulnerability, such as disparities in access to civilian supply infrastructure between urban and rural populations, into the WorldRiskIndex. This should further improve the usability of the WorldRiskIndex for complex strategy and policy decisions.

Despite all methodological optimizations, some aspects of index models cannot be completely avoided: The WorldRiskIndex reduces complex issues to single values, which allows for quick orientation, easier communication, and visualization of results. However, this reduction carries the risk that subtle aspects may be lost or obscured. The model also displays gaps in the areas of "infrastructure", "social networks" and "material security" due to a lack of data availability. Information on local, traditional, informal, or subjective adaptive and coping strategies are also difficult to collect and map on a global level. For example, communities in Zimbabwe construct raised platforms to protect important assets such as seeds, household utensils, or documents from flooding (Mavhura et. al. 2013). In the Philippines, the (psychosocial) support of the immediate environment as well as faith and religious practices play a critical role in coping with extreme events and in reconstruction efforts (Wilkinson 2015). These examples illustrate that, despite their empirical impact on the ability to cope with extreme natural events, local or subjective factors cannot currently be systematically integrated into the WorldRiskIndex due to a lack of data.

Regarding data availability, it should also be noted that global indicators may have missing values, and delays between collection, processing, and publication occur. This is partly because resources for data collection are bound elsewhere in times of crisis, and partly because data sources are often unable to collect and provide data of the required quality for smaller countries. As a result, up-to-date data is not available for all 193 member states of the United Nations, which particularly affects smaller countries and countries experiencing acute emergencies and crises. Although estimating missing values mitigates this, a certain degree of uncertainty always remains in the results of affected countries despite the utmost care, precision, and plausibility. Moreover, the metadata of the indicators does not always specify for each country whether and, if so, which areas or territories (e.g., overseas territories, exclaves) were included in the data collection. Where possible, external territories were not assigned to the respective sovereign to reduce distortions caused by this inaccuracy. However, this was not possible for all countries: in these cases, population-weighted averages were calculated whenever separate values were available for these countries and territories. Due to differences in the treatment of the territories of Kosovo, Palestine, and Taiwan, they were allocated to the territories of Serbia, Israel, and China for methodological reasons. Given current conflicts, it should be emphasized that this procedure is based solely on methodological considerations and does not reflect political positions or the acceptance of legal or political claims.

Altogether, this explanation emphasizes that "a solid understanding of index-based [risk] assessment tools, and their conceptual and methodological underpinnings, is necessary to navigate them properly" (Garschagen et al. 2021). This understanding, facilitated by this chapter and supplementary materials, is particularly important when interpreting and using the results: the values and ranking of the

The Indicators of the WorldRiskIndex

Risk is the interaction of the two spheres of exposure and vulnerability. It arises only where the two spheres meet. In this respect, risks only occur where populations without sufficient resilience, coping, or adaptive capacities live in regions, where hazards from extreme natural events or negative impacts of climate change exist.

Exposure is the extent to which populations in hazard-prone areas are exposed to and burdened by the impacts of extreme natural events or the negative consequences of climate change. Thus, exposure consists of the aspects of hazard, which include the frequency and intensity of earthquakes, tsunamis, coastal and river flooding, cyclones, droughts, and sea level rise in an area (hazard zone) and population (hazard object).

Vulnerability is the predisposition of populations to be vulnerable to damage from extreme natural events or negative impacts of climate change. As a sphere of economic, political, social, and environmental factors, vulnerability depicts the capacities and dispositions of people, households, and societies and indicates how easily and to what extent they can be destabilized, damaged, or even destroyed by extreme events. It consists of the three dimensions of susceptibility, lack of coping capacities, and lack of adaptive capacities, which are subdivided into further categories.

Susceptibility refers to structural characteristics and general conditions of societies that increase the overall likelihood of populations suffering damage from extreme natural events and entering a state of disaster. In this respect, susceptibility indicates the extent of resilience and resources of a population to mitigate the immediate consequences of extreme events.

Coping capacities refer to the abilites and measures of societies to counter adverse impacts of natural events or climate change through direct action and available resources in the form of formally or informally organized activities and measures, as well as to reduce damage in the immediate aftermath of an event as well as to initiate recovery. Within the model of the WorldRiskIndex, the deficits in these capacities are included, which is why it is referred to as the lack of coping capacities.

Adaptive capacities, in contrast to coping capacities, refer to long-term processes and strategies to achieve anticipatory changes in societal structures and systems to counteract, mitigate, or prevent future negative impacts. Analogous to the lack of coping capacities, the lack of adaptive capacities is included in the WorldRiskIndex.

WorldRiskIndex do not allow for immediate conclusions about the subjective assessments and perception of risks by affected communities or about humanitarian needs at the local level. In this respect, when interpreting the results, it should be noted that global index models should always be complemented by and assessed against the background of qualitative data and local knowledge to obtain holistic pictures of risks and potential humanitarian needs.

The WorldRiskIndex and Multiple Crises

The WorldRiskIndex focuses on disaster risks caused by extreme natural events and the negative effects of climate change. Consequently, other types of risk, such as conflicts, wars, or pandemics, are only partially considered or not considered at all. One reason for this is that the driving forces and dynamics of environmental and climate-related risks differ greatly from those of political or technological crises. In addition, unlike the data available for extreme natural events, there is a lack of datasets that allow for a global analysis of conflict risks or pathogenic risks across a broad spectrum of hazards. Nevertheless, these risk types shape the lived reality of many millions of people and are therefore highly relevant for holistic risk analyses (see Article 2.4). The following section uses conflict risks to illustrate both potential approaches and datasets as well as the theoretical and conceptual difficulties associated with integrating further risk types into the WorldRiskIndex.

In recent years, a number of models have been developed to quantify conflict risks and dynamics, which can be roughly divided into two groups. On the one hand, descriptive models such as the Conflict Index (Raleigh / Kishi 2024) or the Conflict Barometer (HIIK 2024) describe the status quo of the occurrence and intensity of armed conflicts. On the other hand, models such as the Global Conflict Risk Index (Schvitz et al. 2022) or the Early Warning Project for Countries at Risk for Mass Killings (United States Holocaust Memorial Museum 2023) are designed to analyze and evaluate variables historically associated with the emergence of conflict, violence, or mass killings, such as ethnic exclusion or declining state capacity, for predictive risk analysis. Both model groups are based on theoretical approaches that differ significantly from those on which the WorldRiskIndex model is based. They focus on social and military structures and processes, while exogenous factors such as environmental influences are rarely considered. Integrating such models into the WorldRiskIndex would therefore only increase the number of indicators without adequately accounting for the complex interaction of risks.

The Conflict Exposure Dataset, published for the first time this year by the Armed Conflict Location & Event Data Project (ACLED) in cooperation with the WorldPop Research Programme (WorldPop), takes a different approach. This dataset aims to combine event-based conflict data with demographic information to gain in-depth insights into the population affected by conflict-related events (ACLED 2024). It records how many people live within one, two, and five kilometers of conflict-related events. Regarding a possible extension of the WorldRiskIndex, this dataset is very interesting for two reasons: First, it is based on a definition of exposure that, despite its different subject matter and the nature of its drivers, has certain similarities with the concept of regional exposure in the WorldRiskIndex. Second, the dataset on conflict exposure is based on the same population data that is included in the exposure sphere of the WorldRiskIndex. Additionally, the Conflict Exposure Dataset provides aggregate values and allows users to analyze the exposure of populations depending on conflict types, conflict parties, and geographical distance to the event location.

Due to the methodological proximity to the exposure sphere of the WorldRiskIndex and the diverse analysis potential of the data, an evaluation based on the 2023 data follows. This allows for a descriptive comparison of the exposure to extreme natural events and negative climate

change impacts with conflict exposure as defined by the WorldRiskIndex. The challenges of permanently integrating such a dataset into the WorldRiskIndex are then discussed, using it as an example for other risk types. It should be noted that only events from the categories "Battles", "Explosions and Remote Violence", "Violence against Civilians" and "Riots" are included in this analysis, as the two categories "Protests" and "Strategic Developments" differ significantly from the unambiguity of the other categories and cannot be associated with a uniform, well-founded understanding of conflict. Based on the calculation of the exposure sphere of the WorldRiskIndex, the three distances of the Conflict Exposure Dataset are considered intensity levels. Absolute and percentage values for the size of the exposed population are calculated for each type of conflict before the data is processed and aggregated in accordance with the methodology of the WorldRiskIndex. For ease of orientation and visualization, the conflict exposure values are divided into five classes, also known as quintiles (see world maps).

This results in a ranking of conflict exposure with Colombia, Brazil, Pakistan, Mexico, Myanmar, Nigeria, Lebanon, Iraq, Sudan and Israel at the top. The uneven distribution of conflict exposure becomes obvious when considering that 130 countries have an exposure value below 1. The equal weight assigned to different conflict types implies that the countries at the top of the ranking are those whose conflict exposure profile is equally pronounced across all conflict types. This is further illustrated when comparing Ukraine (rank 44) with Colombia: While Ukraine's exposure profile is characterized by "Battles" and "Remote Violence", it ranks significantly lower in the other conflict types ("Violence against Civilians" and "Riots"). In contrast, Colombia's exposure profile is characterized by a very high level of overall conflict events by global comparison: The intensity of armed conflict between the armed forces and guerrillas increased sharply in 2023, leading to high levels of internal displacement. Police violence and violence against the civilian population by cartels and other organized criminal actors were also at a very high level (Amnesty International 2024). Similar to the assessment of exposure to extreme natural events and climate change impacts, this perspective emphasizes that the broadest possible range of different types of exposure should be taken into account in an international comparison. This is particularly critical for conflict exposure to be able to map the different vectors and impact levels of armed violence and conflicts.

In light of the WorldRiskIndex' aim of providing guidance to practitioners in the prevention of humanitarian crises and supporting decisions in the prioritization and allocation of resources, this analysis enables descriptive comparisons between exposure to conflict and armed violence on the one hand and extreme natural events on the other. For example, Colombia, Pakistan, Myanmar, and Somalia are among the countries with the highest exposure to conflict and are also among the 15 countries with the highest disaster risk according to the WorldRiskIndex. These examples illustrate how exposure to different types of risk can lead to the erosion of state coping capacities, the emergence of multiple crises, and high humanitarian needs: More than eight million people were in need of humanitarian assistance in Pakistan and Colombia in 2023, and more than a third of the total population in Myanmar and Somalia, respectively (UN OCHA 2024b). Despite the methodological possibilities for outlooks such as the example of conflict risks, a systematic expansion of the WorldRiskIndex to include other risk types in the sense of a nuanced analysis of multiple crises and compound risks is difficult: The driving forces of conflicts, wars and uprisings differ significantly from those of risks arising from extreme natural events, and thus their explanatory approaches offer few entry points for integration into the definitions, structures, and processes of the WorldRiskIndex.

A key reason for this is the basic theoretical assumptions that are reflected in the large number of approaches to explaining the occurrence or intensification of armed conflicts (see Demmers 2017 for an overview). This must be taken into account when integrating other risk types into a more comprehensive index model. For example, theories from the family of "rational choice" approaches analyze incentive and cost-benefit structures to explain the circumstances under which individuals, social groups,

or states resort to violence as a means to achieve their goals and enter into (armed) conflict. Constructivist approaches, on the other hand, primarily analyze the construction of (social) identity, for example through discourses and narratives, to explain belligerent attitudes or behaviors.

Although the various approaches differ significantly in their focus and units of examination, they are united in their attempt to explain human behavior. This is also reflected in the most common definitions of the concept of "armed conflict", which emphasize the use of physical force and thereby ultimately the interaction of two or more (social) actors to enforce competing claims or interests (Frère / Wilen 2015).

Conflict risks thus differ conceptually and theoretically from the risks associated with extreme natural events, which the WorldRiskIndex examines and which are based on the interplay of social (vulnerability) and physical (exposure) processes. There is a lively debate on the influence of environmental factors on conflict dynamics, for example concerning extreme natural events changing incentive or opportunity structures (see Article 2.2). Nevertheless, the phenomenon to be explained – the origins and mechanisms by which conflicts arise and escalate – is ultimately shaped by subjective human decisions and perceptions. In contrast, the WorldRiskIndex emphasizes the (equal) interplay of exposure (as a result of physical processes) and vulnerability (as a result of human behavior) in the assessment of disaster risks, in line with common theoretical approaches such as the Pressure-Release model (Wisner et al. 2004; Weller 2022).

Transferring this logic to other types of risk by integrating them into an index model without further conceptual and theoretical adjustments would, among other things, raise the politically and empirically controversial question of the extent to which, for example, expenditure on police, military or peacekeeping has a positive or negative influence on both the vulnerability of a society to conflict and the stability of the global security architecture. In addition, it is difficult to estimate possible (adverse) secondary effects between individual indicators and their cumulative impact on the overall results of the index model, which may occur especially when financial resources (e.g., from the education system or disaster prevention) are reallocated in the "vulnerability" dimension.

Altogether, the theoretical and conceptual foundations of the models used to quantify conflict risks and intensities are very different from the environmental and climate-related risk types depicted in the WorldRiskIndex. Attempting to integrate multiple forms of risk thus goes far beyond a simple methodological and mathematical extension. It is not enough to simply integrate a few new variables to a model, as the mere blending of different dimensions of exposure runs the risk of oversimplification and may therefore lead to simplified and inadequate policy conclusions, as the questions raised above illustrate.

This also applies to other types of risks besides conflict risks: For example, risks related to disease outbreaks and pandemics are theoretically easier to integrate into the nested structure of the WorldRiskIndex. However, there are few datasets available at the global level that are comprehensive and detailed enough to measure exposure to vector-borne diseases. Therefore, it is necessary to revisit all aspects of the model – from the definitions and vulnerability to the interaction of the spheres – prior to a possible expansion of specialized risk indices. Furthermore, the multiple drivers of risks must be translated into a holistic and viable theoretical explanatory model and their suitability for a potential integration model needs to be validated. To ensure that the integration of multiple types of risk results in a more accurate index, the interactions between different types of risk are particularly important. Despite the high demand for holistic and differentiated assessment of risk types in the sense of compound risk analysis, additional research is required to enable the necessary conceptual adaptation of the index model.

4 Requirements and Recommendations

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and
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The WorldRiskReport 2024 sheds light on the increasing complexity and interconnectedness of risks that threaten societies worldwide. In view of the consequences of climate change, persisting conflicts, economic instability, and social inequalities, these challenges cannot be viewed in isolation from one another in a globalized world. Rather, these crises interact and reinforce each other, creating risk dynamics that often overwhelm conventional coping strategies.

A primary concern of the report is therefore to analyze the interactions between different types of risks and their effects at the global, local, and individual levels. Extreme natural events, such as the devastating drought in Somalia, can not only cause direct damage, but can also fuel conflicts, for example by increasing social tensions. Conversely, conflicts can impair the ability of societies to respond to extreme natural events, as destroyed infrastructure and weak state institutions make disaster risk management more difficult.

These complex interactions illustrate that a one-dimensional perspective on individual crises is insufficient. Integrated approaches are needed that address multidimensional risks in their entirety as well as their root causes. This includes strengthening health and education systems, promoting resilience through sustainable development strategies, as well as improving comprehensive, conflict-sensitive disaster risk reduction and management measures. Global cooperation and data exchange are essential to gain a comprehensive understanding of compound risks and their interacting effects and to develop effective measures.

Strengthen holistic approaches to risk analysis and crisis management

+ The (further) development of approaches to compound risk analysis is necessary. Close cooperation between research and humanitarian practice must be promoted to strengthen more detailed and comprehensive risk analyses in contexts of multiple crises and to facilitate their translation into concrete humanitarian measures.

+ Integrative approaches to managing different crises, such as the "Humanitarian-Development-Peace Nexus", should be strengthened. To this end, incentives and funding mechanisms for cross-sectoral cooperation should be created, and the exchange of evidence on concrete implementation should be systematically promoted.

Improve healthcare systems and psychosocial support in crisis situations

+ Health infrastructures should be expanded and investments in resilient healthcare systems should be increased. This strengthens coping and preparedness capacities for extreme natural events, conflicts, and epidemics alike.

+ Medical staff should be trained in the recognition, prevention, and acute treatment of psychosocial problems and trauma in crisis areas in order to respond to the specific needs in multiple crises. Psychosocial support should be increasingly provided by local actors and embedded in comprehensive strategies that link mental health, peacebuilding, and sustainable development.

Reduce social and gender-specific inequalities

+ Reducing social inequality and poverty is crucial for coping with extreme natural events. In addition to targeted poverty reduction, social protection systems should be designed in a flexible and inclusive manner to respond to different crisis scenarios. A strong social protection system increases the resilience of all social groups to shocks and prevents extreme events from exacerbating existing inequalities.

+ A focus on women and girls in education programs and economic development measures can reduce dependency and promote self-reliance. This reduces the particular vulnerability of women and girls in (multiple) crises and strengthens their ability to respond to future crises and support their families.

+ Awareness campaigns are necessary to reduce stigmatization and discrimination against people with psychosocial challenges. These should be implemented at all levels of society to create broad awareness and facilitate access to support services.

Foster effective disaster risk management in unstable and conflict-affected areas

+ Conflict-sensitive disaster risk management measures are not only necessary in line with the "Do No Harm" principle, but can even lead to effective disaster risk management having a positive impact on conflict dynamics. To this end, the context-specific knowledge of local actors should be incorporated into all phases of the project cycle, and lessons learned and good practices should be shared across organizations and sectors.

+ Anticipatory humanitarian action can mitigate the effects of extreme natural events before they fully unfold, thus preventing potential cascading effects. However, evidence on the value of the approach in contexts of instability and multiple crises is just as important as reliable and flexible financing instruments that are also accessible to local actors.

+ Early warning systems and forecasting capacities must be expanded, particularly in fragile contexts. In line with the United Nations' "Early Warnings for All" initiative, there is a particular focus on promoting multi-hazard early warning systems that cover various extreme events. Such systems should be grounded in local capacities and needs as well as reliable, cross-sectoral partnerships.

+ Local actors and affected communities should take the lead in developing disaster and conflict management strategies. Emergency plans must be systematically based on local capacities, supported by targeted provision of resources and technical knowledge. Strong local capacities are crucial for sustainable crisis prevention as well as rapid and effective crisis response.

+ The expansion and maintenance of critical infrastructure such as roads, health centers and communication systems are necessary to increase resilience to extreme weather events. Weak points in these structures and socio-economic networks must be identified and strengthened. Local actors are best positioned to assess weak points and limits of these networks and thus best placed to avoid critical failure.

+ The international community must cooperate more closely to share data and findings on disaster risk assessment and management, for example through interdisciplinary research and the networking of experts from different fields. The development of global databases and the integration of different risk types into well-founded (index) models facilitate the identification of global risk hotspots and support preventive measures.

Promote and fund comprehensive climate change adaptation

+ The largest CO_2 emitters must take responsibility for the consequences of the climate crisis and provide sufficient funding, for example to the new United Nations Loss and Damage Fund. Only with robust adaptation and coping strategies can countries affected by multiple crises counteract the downward spiral of climate change impacts, lack of economic prospects, and armed conflicts.

+ Sustainable management of natural resources is essential to reduce vulnerabilities to climate-related crises. Innovative approaches such as intelligent irrigation systems or solar-powered technologies for drinking water treatment are important components of holistic development strategies and help to prevent resource conflicts.

+ Initiatives to promote sustainable agricultural practices can improve food security and reduce vulnerability to climate change. Sustainable agriculture stabilizes the rural economy and prevents people from being forced to abandon their homes due to crop failures.

Appendix →

WorldRiskIndex 2024 Overview

Classification	WorldRiskIndex	Exposure	Vulnerability	Susceptibility	Lack of Coping Capacities	Lack of Adaptive Capacities
very low	0.00 – 1.84	0.00 – 0.17	0.00 – 9.90	0.00 – 7.17	0.00 – 3.47	0.00 – 25.28
low	1.85 – 3.20	0.18 – 0.56	9.91 – 15.87	7.18 – 11.85	3.48 – 10.01	25.29 – 37.47
medium	3.21 – 5.87	0.57 – 1.76	15.88 – 24.43	11.86 – 19.31	10.02 – 12.64	37.48 – 48.04
high	5.88 – 12.88	1.77 – 7.78	24.44 – 33.01	19.32 – 34.16	12.65 – 39.05	48.05 – 59.00
very high	12.89 – 100.00	7.79 – 100.00	33.02 – 100.00	34.17 – 100.00	39.06 – 100.00	59.01 – 100.00

Beginning in 2022, the WorldRiskIndex and its components will use fixed thresholds for classifying countries to allow for medium- and long-term trend analysis. These threshold values for the WorldRiskIndex and each dimension have been calculated as the median of the quintiles from the results of the last 20 years.

Rank	Country	WorldRiskIndex	Exposure	Vulnerability	Susceptibility	Lack of Coping Capacities	Lack of Adaptive Capacities
1.	Philippines	46.91	39.99	55.03	51.16	58.07	56.10
2.	Indonesia	41.13	39.89	42.40	32.37	51.01	46.17
3.	India	40.96	35.99	46.62	37.15	54.01	50.49
4.	Colombia	37.81	31.54	45.33	39.30	49.28	48.10
5.	Mexico	35.93	50.08	25.78	30.03	11.97	47.68
6.	Myanmar	35.85	22.43	57.31	51.43	58.75	62.29
7.	Mozambique	34.44	18.10	65.53	65.79	63.13	67.75
8.	Russian Federation	28.12	28.35	27.89	15.31	40.03	35.38
9.	Bangladesh	27.73	16.57	46.39	35.50	57.92	48.54
10.	Pakistan	27.02	13.11	55.69	42.64	63.10	64.18
11.	Peru	27.01	16.65	43.82	36.32	46.06	50.30
12.	Papua New Guinea	26.35	18.84	36.84	57.46	13.59	64.04
13.	Madagascar	24.80	18.38	33.47	34.35	15.27	71.49
14.	Somalia	24.64	8.55	71.02	68.39	81.85	63.98
15.	Yemen	24.47	9.12	65.64	60.55	69.80	66.92
16.	Viet Nam	24.24	26.73	21.98	20.35	12.38	42.13
17.	Bolivarian Republic of Venezuela	24.20	19.52	30.01	29.57	14.43	63.36
18.	Ecuador	23.81	14.57	38.90	28.50	45.47	45.43
19.	United States of America	22.56	39.59	12.85	8.40	7.95	31.78
20.	Nicaragua	21.94	18.71	25.73	36.60	13.94	33.40
21.	Thailand	21.70	14.32	32.87	21.12	47.95	35.08
22.	China	21.31	64.59	7.03	11.03	11.55	2.73
23.	Australia	21.05	31.21	14.20	6.72	14.38	29.64
24.	Japan	20.94	43.67	10.04	11.50	6.89	12.76
25.	Canada	18.89	25.89	13.78	9.95	7.81	33.69
26.	Egypt	18.78	10.74	32.83	16.01	46.24	47.80
27.	Panama	18.19	15.89	20.82	21.22	10.90	39.02
28.	Iran (Islamic Republic of)	17.47	12.49	24.43	20.61	58.11	12.17
29.	Honduras	16.81	8.82	32.02	40.05	14.42	56.87
30.	United Republic of Tanzania	15.98	5.49	46.49	32.41	55.08	56.27
31.	El Salvador	14.94	7.30	30.56	45.22	11.91	53.01
32.	Argentina	14.81	11.54	19.00	14.08	10.93	44.56
33.	Solomon Islands	14.74	9.62	22.57	17.83	12.42	51.89
34.	Malaysia	14.50	8.64	24.34	19.68	20.35	35.99
35.	Turkey	14.48	8.90	23.55	16.01	50.01	16.32
36.	New Zealand	14.34	17.99	11.43	6.89	6.19	35.00
37.	Libyan Arab Jamahiriya	13.87	4.94	38.95	22.11	57.58	46.40
38.	Kenya	13.79	3.27	58.17	58.44	57.58	58.49
39.	Chile	13.74	12.86	14.68	8.35	9.43	40.15

Rank	Country	WorldRiskIndex	Exposure	Vulnerability	Susceptibility	Lack of Coping Capacities	Lack of Adaptive Capacities
40.	Dominican Republic	13.33	7.05	25.20	27.78	12.50	46.06
41.	Brazil	13.15	6.37	27.14	33.79	12.38	47.81
42.	Syrian Arab Republic	12.50	2.53	61.80	49.54	72.97	65.30
43.	Dem. People's Republic of Korea	12.38	7.22	21.23	11.04	13.83	62.69
44.	Guatemala	11.76	4.29	32.25	39.83	14.67	57.42
45.	Vanuatu	11.58	5.80	23.12	17.84	12.18	56.86
46.	Cameroon	11.40	2.08	62.44	58.76	65.04	63.69
47.	Costa Rica	11.17	9.89	12.62	19.36	10.86	9.57
48.	Italy	11.11	8.69	14.20	9.59	8.18	36.50
49.	Djibouti	10.82	4.25	27.53	30.76	14.51	46.73
50.	Republic of Korea	10.59	9.96	11.26	7.13	8.11	24.66
51.	Morocco	10.43	7.63	14.25	19.74	11.68	12.55
52.	Angola	10.42	2.37	45.83	25.01	56.87	67.70
53.	Sudan	10.30	1.65	64.26	57.29	66.87	69.28
54.	Haiti	9.96	2.78	35.71	44.06	14.65	70.55
55.	Tunisia	9.91	2.88	34.11	21.04	44.02	42.85
56.	Democratic Republic of Congo	9.87	1.37	71.04	68.89	73.82	70.50
57.	Spain	9.74	7.77	12.21	7.02	7.98	32.46
58.	Algeria	9.64	2.62	35.49	18.12	49.06	50.28
59.	South Africa	9.60	3.13	29.46	38.19	12.97	51.60
60.	Saudi Arabia	9.34	5.25	16.63	7.84	19.98	29.37
61.	Nigeria	9.33	1.32	65.88	59.40	67.90	70.89
62.	Mauritania	9.32	2.91	29.85	29.75	14.55	61.47
63.	Iraq	9.24	1.72	49.67	38.42	66.13	48.24
64.	Greece	8.61	8.25	8.98	8.60	8.87	9.49
65.	Cambodia	8.15	2.47	26.92	29.55	13.71	48.14
66.	Oman	8.06	6.68	9.72	10.12	4.82	18.84
67.	Belize	7.97	2.50	25.44	27.78	12.61	47.02
68.	Cuba	7.80	4.57	13.31	13.12	10.24	17.54
69.	Timor-Leste	7.55	2.93	19.46	10.71	12.45	55.27
70.	France	7.54	2.70	21.03	8.69	30.55	35.03
71.	Eritrea	7.47	2.30	24.26	18.30	14.67	53.20
72.	Guyana	7.35	2.63	20.55	18.39	11.67	40.44
73.	Suriname	6.76	1.78	25.70	26.73	11.45	55.45
74.	Fiji	6.70	2.79	16.07	20.62	11.55	17.43
75.	Guinea	6.55	1.47	29.17	23.61	14.68	71.64
76.	Albania	6.24	2.29	17.01	11.61	11.10	38.18
77.	Sri Lanka	6.16	1.60	23.75	24.65	12.28	44.28
78.	Sierra Leone	5.72	1.09	29.97	32.02	12.94	64.95
79.	United Kingdom of Great Britain and Northern Ireland	5.70	2.58	12.59	6.67	7.76	38.60
80.	Senegal	5.66	1.05	30.50	39.77	12.47	57.21
81.	Republic of Congo	5.49	0.57	52.84	45.68	57.13	56.52
82.	Namibia	5.40	1.32	22.12	17.99	11.12	54.08
83.	Belgium	5.10	1.84	14.13	5.93	18.56	25.62
84.	Gabon	5.08	1.50	17.21	15.92	6.29	50.90
84.	Portugal	5.08	3.07	8.40	10.83	3.95	13.86
86.	Uruguay	4.97	1.54	16.07	12.18	8.70	39.13
87.	Gambia	4.89	0.67	35.72	55.58	12.60	65.07
88.	Ethiopia	4.86	0.36	65.69	62.86	63.96	70.49
89.	Bahamas	4.82	1.51	15.36	8.97	9.64	41.88
90.	Croatia	4.78	1.57	14.56	8.55	9.39	38.42
91.	Poland	4.74	1.73	13.01	6.77	7.71	42.22

Rank	Country	WorldRiskIndex	Exposure	Vulnerability	Susceptibility	Lack of Coping Capacities	Lack of Adaptive Capacities
92.	United Arab Emirates	4.54	3.77	5.46	2.29	2.38	29.82
93.	Federated States of Micronesia	4.44	1.12	17.62	9.92	10.97	50.23
94.	Ukraine	4.41	0.48	40.55	28.33	43.90	53.62
95.	South Sudan	4.25	0.25	72.39	71.48	69.34	76.55
96.	Afghanistan	4.12	0.25	67.77	56.66	78.94	69.60
97.	Netherlands	4.11	2.20	7.66	4.33	3.29	31.58
98.	Germany	4.10	1.99	8.46	5.18	3.24	36.06
99.	Tonga	4.02	1.33	12.13	12.89	11.50	12.03
100.	Lebanon	3.87	0.38	39.33	21.14	50.25	57.26
101.	Israel	3.81	0.88	16.51	8.55	16.79	31.34
102.	Georgia	3.74	0.73	19.18	19.21	9.63	38.13
103.	Jordan	3.61	0.57	22.88	13.11	20.54	44.50
104.	Mauritius	3.58	0.73	17.59	13.40	9.60	42.30
105.	Guinea-Bissau	3.55	0.67	18.84	14.10	7.04	67.37
106.	Cyprus	3.50	1.02	12.04	7.03	7.84	31.69
107.	Central African Republic	3.44	0.16	73.86	74.75	70.16	76.82
108.	Jamaica	3.40	1.10	10.54	8.86	2.89	45.70
109.	Malawi	3.37	0.35	32.44	34.28	14.59	68.28
110.	Equatorial Guinea	3.25	0.86	12.31	10.68	3.58	48.77
111.	Samoa	3.23	0.81	12.88	15.24	2.59	54.18
111.	Sweden	3.23	1.05	9.95	5.63	6.47	27.04
113.	Romania	3.22	0.71	14.59	7.63	8.44	48.23
114.	Plurinational State of Bolivia	3.20	0.35	29.17	36.64	13.51	50.13
115.	Marshall Islands	3.12	0.50	19.51	16.36	10.36	43.83
116.	Liberia	3.11	0.54	17.89	25.34	3.49	64.79
117.	Lao People's Democratic Republic	3.03	0.38	24.24	17.14	13.38	62.09
118.	Burundi	3.02	0.16	57.04	46.01	58.82	68.58
119.	Latvia	3.01	0.79	11.46	9.39	4.23	37.94
120.	Trinidad and Tobago	3.00	0.49	18.34	12.41	11.32	43.93
121.	Chad	2.94	0.12	71.82	68.90	70.26	76.51
121.	Ghana	2.94	0.34	25.48	37.30	11.66	38.05
123.	Zambia	2.93	0.28	30.75	34.10	13.58	62.81
124.	Antigua and Barbuda	2.90	1.20	7.00	8.44	2.58	15.77
124.	Montenegro	2.90	0.83	10.12	9.91	2.44	42.85
126.	Saint Lucia	2.83	0.46	17.40	11.60	10.04	45.23
127.	Kiribati	2.81	0.69	11.45	9.93	2.88	52.44
127.	Uganda	2.81	0.23	34.40	48.78	13.94	59.89
129.	Kuwait	2.77	1.05	7.30	4.67	2.56	32.54
130.	Nepal	2.71	0.25	29.33	35.38	12.85	55.48
131.	Dominica	2.69	0.79	9.17	7.16	2.47	43.62
132.	Comoros	2.68	0.33	21.72	12.51	14.50	56.51
133.	Rwanda	2.63	0.16	43.15	32.38	45.71	54.27
133.	Saint Vincent and the Grenadines	2.63	0.43	16.04	11.09	9.50	39.15
135.	Zimbabwe	2.62	0.20	34.23	41.90	14.07	68.01
136.	Armenia	2.61	0.23	29.54	15.51	41.56	39.99
136.	Norway	2.61	1.06	6.42	2.19	4.88	24.78
138.	Seychelles	2.57	1.03	6.39	4.25	2.38	25.81
139.	Ireland	2.55	1.45	4.50	5.97	1.87	8.15
140.	Kyrgyzstan	2.53	0.22	29.20	43.49	11.28	50.76
141.	Bosnia and Herzegovina	2.49	0.34	18.24	10.72	11.48	49.32
142.	Barbados	2.46	0.48	12.65	5.46	8.60	43.12
143.	Bulgaria	2.43	0.30	19.62	18.87	8.95	44.75

Rank	Country	WorldRiskIndex	Exposure	Vulnerability	Susceptibility	Lack of Coping Capacities	Lack of Adaptive Capacities
144.	Tajikistan	2.36	0.23	24.25	26.28	11.79	46.00
145.	Lithuania	2.32	0.64	8.39	7.26	2.13	38.25
146.	Mali	2.29	0.08	65.61	60.79	70.97	65.46
147.	Azerbaijan	2.23	0.23	21.58	15.20	12.85	51.44
148.	Niger	2.16	0.07	66.48	66.36	67.89	65.22
149.	Saint Kitts and Nevis	2.14	0.53	8.61	8.47	2.48	30.38
150.	Slovenia	2.10	0.31	14.24	10.00	7.92	36.48
151.	Côte d'Ivoire	2.02	0.13	31.54	41.54	12.63	59.80
151.	Palau	2.02	0.36	11.35	6.58	9.49	23.44
153.	Burkina Faso	2.01	0.07	57.50	59.28	63.22	50.74
153.	Iceland	2.01	0.55	7.38	6.21	3.34	19.35
155.	Mongolia	1.95	0.21	18.20	11.67	11.19	46.17
156.	Kazakhstan	1.94	0.25	14.99	19.15	10.14	17.33
157.	Eswatini	1.93	0.14	26.70	29.72	13.23	48.42
158.	Grenada	1.82	0.31	10.74	11.37	2.58	42.18
159.	Benin	1.77	0.09	34.75	53.24	13.22	59.64
159.	Estonia	1.77	0.43	7.30	5.57	1.91	36.56
161.	Serbia	1.68	0.17	16.62	10.97	9.65	43.35
162.	Paraguay	1.65	0.14	19.52	12.13	12.41	49.43
163.	Togo	1.58	0.07	35.75	56.51	13.54	59.73
164.	Finland	1.54	0.49	4.84	5.41	0.83	25.26
165.	Tuvalu	1.53	0.15	15.54	9.26	10.60	38.24
166.	Uzbekistan	1.52	0.18	12.89	15.43	10.84	12.80
167.	Botswana	1.34	0.09	19.93	15.79	10.11	49.62
168.	Lesotho	1.33	0.07	25.38	18.32	14.07	63.42
169.	Brunei Darussalam	1.29	0.33	5.04	7.71	2.23	7.46
169.	North Macedonia	1.29	0.10	16.76	9.78	10.06	47.84
169.	Republic of Moldova	1.29	0.10	16.52	9.48	9.97	47.73
172.	Turkmenistan	1.25	0.17	9.14	9.11	3.08	27.21
173.	Bhutan	1.18	0.10	14.03	8.02	9.02	38.15
174.	Cape Verde	1.17	0.07	19.71	14.92	10.73	47.84
175.	Austria	1.16	0.17	7.90	4.59	3.36	31.92
176.	Maldives	1.11	0.11	11.12	9.52	9.89	14.62
177.	Czech Republic	1.09	0.10	11.94	6.13	7.03	39.51
178.	Switzerland	1.05	0.16	6.85	4.73	2.89	23.54
179.	Malta	1.03	0.15	7.14	5.62	2.09	30.93
179.	Slovakia	1.03	0.10	10.62	7.18	4.20	39.77
181.	Nauru	1.02	0.11	9.39	8.48	2.79	34.97
182.	Denmark	0.98	0.18	5.36	3.51	1.61	27.31
183.	Hungary	0.95	0.11	8.22	5.46	9.62	10.56
184.	Bahrain	0.94	0.14	6.31	5.64	2.63	16.93
184.	Qatar	0.94	0.15	5.87	4.09	4.26	11.62
186.	Singapore	0.80	0.15	4.25	3.83	0.83	24.11
187.	Belarus	0.76	0.05	11.48	7.74	5.67	34.51
188.	Liechtenstein	0.71	0.09	5.64	6.50	0.99	27.92
189.	São Tomé and Príncipe	0.67	0.02	22.26	16.56	12.79	52.07
190.	Luxembourg	0.61	0.06	6.17	4.16	5.85	9.65
191.	San Marino	0.35	0.03	4.11	2.74	1.31	19.37
192.	Andorra	0.28	0.02	3.96	2.63	1.86	12.66
193.	Monaco	0.18	0.02	1.57	1.68	0.44	5.25

WorldRiskIndex 2024, Countries in Alphabetical Order

Country	WRI	Rank
Afghanistan	4.12	96.
Albania	6.24	76.
Algeria	9.64	58.
Andorra	0.28	192.
Angola	10.42	52.
Antigua and Barbuda	2.90	124.
Argentina	14.81	32.
Armenia	2.61	136.
Australia	21.05	23.
Austria	1.16	175.
Azerbaijan	2.23	147.
Bahamas	4.82	89.
Bahrain	0.94	184.
Bangladesh	27.73	9.
Barbados	2.46	142.
Belarus	0.76	187.
Belgium	5.10	83.
Belize	7.97	67.
Benin	1.77	159.
Bhutan	1.18	173.
Bolivarian Republic of Venezuela	24.20	17.
Bosnia and Herzegovina	2.49	141.
Botswana	1.34	167.
Brazil	13.15	41.
Brunei Darussalam	1.29	169.
Bulgaria	2.43	143.
Burkina Faso	2.01	153.
Burundi	3.02	118.
Cambodia	8.15	65.
Cameroon	11.40	46.
Canada	18.89	25.
Cape Verde	1.17	174.
Central African Republic	3.44	107.
Chad	2.94	121.
Chile	13.74	39.
China	21.31	22.
Colombia	37.81	4.
Comoros	2.68	132.
Costa Rica	11.17	47.
Côte d'Ivoire	2.02	151.
Croatia	4.78	90.
Cuba	7.80	68.
Cyprus	3.50	106.
Czech Republic	1.09	177.
Democratic People's Republic of Korea	12.38	43.
Democratic Republic of Congo	9.87	56.
Denmark	0.98	182.
Djibouti	10.82	49.
Dominica	2.69	131.
Dominican Republic	13.33	40.
Ecuador	23.81	18.

Country	WRI	Rank
Egypt	18.78	26.
El Salvador	14.94	31.
Equatorial Guinea	3.25	110.
Eritrea	7.47	71.
Estonia	1.77	159.
Eswatini	1.93	157.
Ethiopia	4.86	88.
Federated States of Micronesia	4.44	93.
Fiji	6.70	74.
Finland	1.54	164.
France	7.54	70.
Gabon	5.08	84.
Gambia	4.89	87.
Georgia	3.74	102.
Germany	4.10	98.
Ghana	2.94	121.
Greece	8.61	64.
Grenada	1.82	158.
Guatemala	11.76	44.
Guinea	6.55	75.
Guinea-Bissau	3.55	105.
Guyana	7.35	72.
Haiti	9.96	54.
Honduras	16.81	29.
Hungary	0.95	183.
Iceland	2.01	153.
India	40.96	3.
Indonesia	41.13	2.
Iran (Islamic Republic of)	17.47	28.
Iraq	9.24	63.
Ireland	2.55	139.
Israel	3.81	101.
Italy	11.11	48.
Jamaica	3.40	108.
Japan	20.94	24.
Jordan	3.61	103.
Kazakhstan	1.94	156.
Kenya	13.79	38.
Kiribati	2.81	127.
Kuwait	2.77	129.
Kyrgyzstan	2.53	140.
Lao People's Democratic Republic	3.03	117.
Latvia	3.01	119.
Lebanon	3.87	100.
Lesotho	1.33	168.
Liberia	3.11	116.
Libyan Arab Jamahiriya	13.87	37.
Liechtenstein	0.71	188.
Lithuania	2.32	145.
Luxembourg	0.61	190.
Madagascar	24.80	13.
Malawi	3.37	109.

Country	WRI	Rank
Malaysia	14.50	34.
Maldives	1.11	176.
Mali	2.29	146.
Malta	1.03	179.
Marshall Islands	3.12	115.
Mauritania	9.32	62.
Mauritius	3.58	104.
Mexico	35.93	5.
Monaco	0.18	193.
Mongolia	1.95	155.
Montenegro	2.90	124.
Morocco	10.43	51.
Mozambique	34.44	7.
Myanmar	35.85	6.
Namibia	5.40	82.
Nauru	1.02	181.
Nepal	2.71	130.
Netherlands	4.11	97.
New Zealand	14.34	36.
Nicaragua	21.94	20.
Niger	2.16	148.
Nigeria	9.33	61.
North Macedonia	1.29	169.
Norway	2.61	136.
Oman	8.06	66.
Pakistan	27.02	10.
Palau	2.02	151.
Panama	18.19	27.
Papua New Guinea	26.35	12.
Paraguay	1.65	162.
Peru	27.01	11.
Philippines	46.91	1.
Plurinational State of Bolivia	3.20	114.
Poland	4.74	91.
Portugal	5.08	84.
Qatar	0.94	184.
Republic of Congo	5.49	81.
Republic of Korea	10.59	50.
Republic of Moldova	1.29	169.
Romania	3.22	113.
Russian Federation	28.12	8.
Rwanda	2.63	133.
Saint Kitts and Nevis	2.14	149.
Saint Lucia	2.83	126.
Saint Vincent and the Grenadines	2.63	133.
Samoa	3.23	111.
San Marino	0.35	191.
São Tomé and Príncipe	0.67	189.
Saudi Arabia	9.34	60.
Senegal	5.66	80.
Serbia	1.68	161.

Country	WRI	Rank
Seychelles	2.57	138.
Sierra Leone	5.72	78.
Singapore	0.80	186.
Slovakia	1.03	179.
Slovenia	2.10	150.
Solomon Islands	14.74	33.
Somalia	24.64	14.
South Africa	9.60	59.
South Sudan	4.25	95.
Spain	9.74	57.
Sri Lanka	6.16	77.
Sudan	10.30	53.
Suriname	6.76	73.
Sweden	3.23	111.
Switzerland	1.05	178.
Syrian Arab Republic	12.50	42.
Tajikistan	2.36	144.
Thailand	21.70	21.
Timor-Leste	7.55	69.
Togo	1.58	163.
Tonga	4.02	99.
Trinidad and Tobago	3.00	120.
Tunisia	9.91	55.
Turkey	14.48	35.
Turkmenistan	1.25	172.
Tuvalu	1.53	165.
Uganda	2.81	127.
Ukraine	4.41	94.
United Arab Emirates	4.54	92.
United Kingdom of Great Britain and Northern Ireland	5.70	79.
United Republic of Tanzania	15.98	30.
United States of America	22.56	19.
Uruguay	4.97	86.
Uzbekistan	1.52	166.
Vanuatu	11.58	45.
Viet Nam	24.24	16.
Yemen	24.47	15.
Zambia	2.93	123.
Zimbabwe	2.62	135.

Only countries that are United Nations member states are considered.

Bibliography

ACAPS (2017): Briefing Note. Mudslide and flooding in Greater Freetown. 15 August 2017. https://reliefweb.int/sites/reliefweb.int/files/resources/acaps_start_briefing_note_sierra_leone_mudslides_and_floods_170816.pdf (Accessed: 10.04.2024).

ACLED (2024): Conflict Exposure – A new measure of the impact of conflict on civilians. https://acleddata.com/conflict-exposure/ (Accessed: 01.07.2024).

AHAMED, M. S. / SARMAH, T. / DABRAL, A. / CHATTERJEE, R. / SHAW, R. (2023): Unpacking systemic, cascading, and compound risks: A case based analysis of Asia Pacific. In: Progress in Disaster Science, Volume 18.

AIDR (2021): Systemic Disaster Risk Handbook. Australian Institute for Disaster Resilience. https://knowledge.aidr.org.au/resources/handbook-systemic-disaster-risk/ (Accessed: 22.04.2024).

AMNESTY INTERNATIONAL (2024): Kolumbien 2023. https://www.amnesty.de/informieren/amnesty-report/kolumbien-2023#section-23638360 (Accessed: 01.07.2024).

ARMONIA (2004): Applied multi Risk Mapping of Natural Hazards for Impact Assessment, Copernicus. https://www.copernicus.eu/en/documentation/research-projects/applied-multi-risk-mapping-natural-hazards-impact-assessment (Accessed: 19.07.2024).

AYUGI, B. / ERESANYA, E. O. / ONYANGO, A. O. / OGOU, F. K. / OKORO, E. C. / OKOYE, C. O. / ANORUO, C. M. / DIKE, V. N. / ASHIRU, O. R. / DARAMOLA, M. T. / MUMO, R. / ONGOMA, V. (2022): Review of Meteorological Drought in Africa: Historical Trends, Impacts, Mitigation Measures, and Prospects. Pure and Applied Geophysics, 179(4), 1365-1386. https://doi.org/10.1007/s00024-022-02988-z (Aufruf: 17.07.2024).

BALATTI, E. / JOHNSON, M. O. (2022): Healing from Trauma and Promoting Peace in the Greater Upper Nile Region of South Sudan. In: Journal of African Interdisciplinary Studies, 6(9), 89-104. https://cedred.org/jais/images/october2022/PDF_Balatti__Johnson_Healing_from_Trauma_and_Promoting_Peace_in_South_Sudan.pdf (Accessed 12.05.2024).

BANGURA, K. S. / LYNCH, K. / BINNS, J. A. (2013): Coping with the impacts of weather changes in rural Sierra Leone. In: International Journal of Sustainable Development & World Ecology, 20(1), 20-31.

BARTLETT, M. S. (1947): The use of transformations. In: Biometrics, 3(1), 39-52. https://doi.org/10.2307/3001536 (Accessed: 16.08.2024).

BENDER, S. / BUTTS, M. / HAGEMANN, S. / SMITH, M. / VEREECKEN, H. / WENDLAND, F. (2017): Der Einfluss des Klimawandels auf die terrestrischen Wassersysteme in Deutschland. Eine Analyse ausgesuchter Studien der Jahre 2009 bis 2013. Report 29. Hamburg: Climate Service Center Germany. https://www.climate-service-center.de/imperia/md/content/csc/report29.pdf (Aufruf 03.05.2024).

BIRKMANN, J. (2006): Measuring vulnerability to promote disaster-resilient societies: Conceptual frameworks and definitions. In: Birkmann, J. (ed.): Measuring Vulnerability to Natural Hazards: Towards Disaster Resilient Societies. Tokyo, New York, Paris: United Nations University Press, 9-54.

BMZ (2021a): Länderinformationen zu Demokratische Republik Kongo. Entwicklungspolitische Kennzahlen, Anteil der unterernährten Menschen. https://www.bmz.de/de/laender/demokratische-republik-kongo (Accessed: 11.06.2024).

BMZ (2021b): Länderinformationen zu Sierra Leone: Entwicklungspolitische Kennzahlen, Anteil der unterernährten Menschen. https://www.bmz.de/de/laender/sierra-leone (Accessed: 11.06.2024).

BMZ (2022): One Health. https://www.bmz.de/de/themen/one-health (Abruf: 16.07.2024).

BOGARDI, J. / BIRKMANN, J. (2004): Vulnerability Assessment: The First Step Towards Sustainable Risk Reduction. In: Malzahn, D. / Plapp, T. (ed.): Disaster and Society – From Hazard Assessment to Risk Reduction. Berlin: Logos Verlag, 75-82.

BÜNDNIS ENTWICKLUNG HILFT (2011): WorldRiskReport 2011. Berlin. Bündnis Entwicklung Hilft.

CARDONA, O. D. (1999): Environmental management and disaster prevention: Two related topics. In: Ingleton, J (ed.): Natural Disaster Management. London: Tudor-Rose, 151-153.

CARDONA, O. D. (2005): A system of indicators for disaster risk management in the Americas: Proceedings of the International Conference: 250th Anniversary of the 1755 Lisbon earthquake. Lisbon. https://www.unisdr.org/2005/HFdialogue/download/tp3-paper-system-indicators.pdf (Accessed: 16.08.2024).

CARDONA O.D. / CARRENO, M.L. (2011): Updating the indicators for disaster risk and risk management for the Americas. In: Journal of Integrated Disaster Risk Management, 1(1), 27-47.

CARETTA, M.A. / MUKHERJI, A. / ARFANUZZAMAN, M. / BETTS, R.A. / GELFAN, A. / HIRABAYASHI, Y. / LISSNER, T.K. / LIU J. / LOPEZ GUNN, E. / MORGAN, R. / MWANGA, S. / SUPRATID, S. (2022): Water. In: Pörtner, H.O. / Roberts, D.C. / Tignor, M. / Poloczanska, E.S. / Mintenbeck, K. / Alegria, A. / Craig, M. / Langsdorf, S. / Löschke, S. / Möller, V. / Okem, A. / Rama, B. (ed.), Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, UK und New York, NY, USA, 551-712. https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-4/ (Accessed: 03.05.2024).

CHARLSON, F. / VAN OMMEREN, M. / FLAXMAN, A. / CORNETT, J. / WHITEFORD, H. / SAXENA, S. (2019): New WHO prevalence estimates of mental disorders in conflict settings: A systematic review and meta-analysis. In: The Lancet. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)30934-1/fulltext (Accessed: 12.05.2024).

COPERNICUS CLIMATE CHANGE SERVICE (2024): 2023 was hottest year on record, new Copernicus report shows. https://civil-protection-knowledge-network.europa.eu/news/2023-was-hottest-year-record-new-copernicus-report-shows (Accessed: 01.07.2024).

CULLEY, S. / NOBLE, S. / YATES, A. / TIMBS, M. / WESTRA, S. / MAIER, H.R. / GIULIANI, M. / CASTELLETTI, A. (2016): A bottom-up approach to identifying the maximum operational adaptive capacity of water resource systems to a changing climate. Water Resources Research, 52(9), 6751-6768. https://doi.org/10.1002/2015wr018253 (Accessed: 19.07.2024).

DAVIES, S. (1993): Are coping strategies a cop out? In: IDS Bulletin, 24(4).

DEMMERS, J. (ed.) (2017): Theories of Violent Conflict – An Introduction. New York: Routledge.

DEVELOPMENT INITIATIVES (2023): Global Humanitarian Assistance Report 2023. https://devinit-prod-static.ams3.cdn.digitaloceanspaces.com/media/documents/GHA2023_Digital_v9.pdf (Accessed: 03.05.2024).

DINC, P. / EKLUND, L. (2023): Syrian farmers in the midst of drought and conflict: the causes, patterns, and aftermath of land abandonment and migration. In: Climate and Development, 1-14.

DOTTORI, F. / SALAMON, P. / BIANCHI, A. / ALFIERI, L. / AGA HIRPA, F. / FEYEN, L. (2016): Development and evaluation of a framework for global flood hazard mapping. In: Advances in Water Resources, 94, 87-102.

DOUVILLE, H. / RAGHAVAN, K. / RENWICK, J. / ALLAN, R. P. / ARIAS, P. A. / BARLOW, M. / ZOLINA, O. (2021): Water Cycle Changes. In: Climate Change 2021. The Physical Science Basis. Part of Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

DURACK, P. J. (2015): Ocean salinity and the global water cycle. In: Oceanography 28(1), 20-31. http://dx.doi.org/10.5670/oceanog.2015.03 (Accessed: 03.05.2024).

EASTIN, J. / ZECH, S. T. (2022): Environmental pressures and pro-government militias: evidence from the Philippines. In: Conflict Management and Peace Science, 45(9), 817-841.

EM-DAT (2024): EM-DAT: the international disasters database. https://www.emdat.be (Accessed: 13.05.2024).

EUROPEAN COUNCIL / COUNCIL OF THE EUROPEAN UNION (2024): Humanitäre Hilfe. https://www.consilium.europa.eu/de/policies/humanitarian-aid/ (Accessed: 09.07.2024).

FAKHRUDDIN, B. / KIRSCH-WOOD, J. / NIYOGI, D. / GUOQING, L. / MURRAY, V. / FROLOVA, N. (2022): Harnessing risk-informed data for disaster and climate resilience. 2590-0617 16, 100254. https://www.sciencedirect.com/science/article/pii/s2590061722000412 (Accessed: 19.07.2024).

FRÈRE, M.S. / WILEN, N. (2015): INFOCORE Definitions: "Violent conflict". Brüssel: ULB. http://www.infocore.eu/results/definitions (Accessed: 18.06.2024).

GARDONI, P. / MURPHY, C. / ROWELL, A. (2016): Risk Analysis of Natural Hazards: Interdisciplinary Challenges and Integrated Solutions. In: Risk, Governance and Society, vol. 19. Springer, Cham. https://doi.org/10.1007/978-3-319-22126-7_1 (Accessed: 19.07.2024).

GARSCHAGEN, M. / DOSHI, D. / REITH, J. / HAGENLOCHER, M. (2021): Global patterns of disaster and climate risk – an analysis of the consistency of leading index-based assessments and their results. In: Climate Change 169 (11).

GIRGIN, S. / NECCI, A. / KRAUSMANN, E. (2019): Dealing with cascading multi-hazard risks in national risk assessment: the case of Natech accidents. In: International Journal of Disaster Risk Reduction, Volume 35, Article 101072.

GLOBAL PEACE INDEX (2024): Visions Of Humanity. Key Trends in the Global Peace Index 2024. https://www.visionofhumanity.org/maps/#/ (Accessed: 09.07.2024).735

GONG, W. / CHEN, K. / HUGGINS, T. / YANG, L. (2020): Risk Evaluation Based on Variable Fuzzy Sets and Information Diffusion Method. In: Journal of Applied Mathematics and Physics, 8, 821-830. https://doi.org/10.4236/jamp.2020.85064 (Accessed: 19.07.2024).

GONG, W. / JIANG, J. / & YANG, L. (2022): Dynamic risk assessment of compound hazards based on VFS–IEM–IDM: a case study of typhoon – rainstorm hazards in Shenzhen, China. Natural Hazards and Earth System Sciences, 22, 3271-3283. https://doi.org/10.5194/nhess-22-3271-2022 (Accessed: 19.07.2024).

HIIK [HEIDELBERGER INSTITUT FÜR INTERNATIONALE KONFLIKTFORSCHUNG E.V.] (2024): Methodik. https://hiik.de/hiik/methodik/ (Accessed: 18.06.2024).

HENTSCHEL, C./ BENNER, A. / NIEMANN, H. / SCHRÖDER, U. (2023): Multiple Krisen — Erfahrungen, Bewältigungsstrategien, Zukunftsvisionen. Ein Bericht aus Hamburger Forschungswerkstätten. https://www.wiso.uni-hamburg.de/en/fachbereich-sowi/professuren/hentschel/forschung/multiple-krisen.pdf (Accessed: 12.07.2024).

HONAKER, J. / KING, G. (2010): What to do about missing values in times-series cross-section data. In: American Journal of Political Science, 54(2), 561-581.

IASC [Inter-Agency Standing Committee] (2007): IASC Guidelines on mental health and psychosocial support in emergency settings. Genf: IASC. https://interagencystandingcommittee.org/sites/default/files/migrated/2020-11/IASC%20Guidelines%20on%20Mental%20Health%20and%20Psychosocial%20Support%20in%20Emergency%20Settings%20%28English%29.pdf (Accessed: 12.05.2024).

IDE, T. (2023): Catastrophes, confrontations, and constraints: how disasters shape the dynamics of armed conflicts. Cambridge, MA: MIT Press.

IDE, T. / BRZOSKA, M. / DONGES, J. F. / SCHLEUSSNER, C. (2020): Multi-method evidence for when and how climate-related disasters contribute to armed conflict risk. In: Global Environmental Change, 62(1), Art. 102063.

IDE, T. / KRISTENSEN, A. / BARTUSEVICIUS, H. (2021): First comes the river, then comes the conflict? A qualitative comparative analysis of flood-related political unrest. In: Journal of Peace Research, 58(1), 83-97.

IDMC (2023a): Congo, Democratic Republic of. Displacement Data. https://www.internal-displacement.org/countries/democratic-republic-of-the-congo/ (Accessed: 09.07.2024).

IDMC (2023b): Sierra Leone Country Information. Displacement Data. https://www.internal-displacement.org/countries/sierra-leone/ (Accessed: 09.07.2024)

IDMC (2023c): IDMC Data Portal. Internal Displacements. https://www.internal-displacement.org/database/displacement-data/ (Accessed: 09.07.2024).

INTER-AGENCY STANDING COMMITTEE AND EUROPEAN COMMISSION (2024): INFORM REPORT 2024: 10 YEARS OF INFORM. JRC136641. Luxemburg: Publications Office of the European Union. https://doi.org/10.2760/555548.

IONIDES, E. L. / BRETÓ, C. / KING, A. A. (2006): Inference for nonlinear dynamical systems. Proceedings of the National Academy of Sciences of the United States of America, 103(49), 18438-18443. https://doi.org/10.1073/pnas.0603181103 (Accessed: 19.07.2024).

IPCC (2012): Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. In: Field, C.B. / Barros, V. / Stocker, T.F. / Dahe, Q. / Dokken, D.J. / Ebi, K.L. / Mastrandrea, M.D. / Mach, K.J. / Platter, G.K. / Allen, S.K. / Tignor, M. / Midgley, P.M. (ed.), Special Report of the Intergovernmental Panel on Climate Change. https://www.ipcc.ch/site/assets/uploads/2018/03/SREX_Full_Report-1.pdf (Accessed: 23.07.2024)

IPCC (2022a): Summary for Policymakers. In: Pörtner, H.-O. / Roberts, D.C. / Tignor, M. / Poloczanska, E.S. / Mintenbeck, K. / Alegría, A. / Craig, M. / Langsdorf, S. / Löschke, S. / Möller, V. / Okem, A. / Rama, B. (ed.), Climate Change 2022: Impacts, Adaptation, and Vulnerability. Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK und New York, NY, USA, 3-33. https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryVolume.pdf (Accessed: 03.05.2024).

IPCC (2022b): Annex II: Glossary: MÖLLER, V. / DIEMEN, van R. / MATTHEWS, J.B.R. / MÉNDEZ C. / SEMENOV S. / FUGLESTVEDT J.S. / REISINGER A. (ed.). In: Climate Change 2022: Impacts, Adaptation and Vulnerability, Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Pörtner H.-O. / Roberts D.C. / Tignor M. / Poloczanska E.S. / Mintenbeck K. / Alegría, A. / Craig M. / Langsdorf S. / Löschke S. / Möller V. / Okem A. / Rama B. (ed.), Cambridge University Press, Cambridge, UK und New York, NY, USA, 2897-2930. https://doi.org/10.1017/9781009325844.029 (Accessed: 19.07.2024).

JAIN, S. / LALL, U. (2001): Floods in a changing climate: Does the past represent the future? Water Resources Research, 37(12), 3193-3205. https://doi.org/10.1029/2001wr000495 (Accessed: 19.07.2024).

JOINT RESEARCH CENTRE (2014): INFORM Index for Risk Management: Concept and Methodology Version 2014. JRC87617. Luxembourg: Publications Office of the European Union. https://doi.org/10.2788/78658 (Accessed: 19.07.2024).

JOINT RESEARCH CENTRE (2017): INFORM Index for Risk Management: Concept and Methodology Version 2017. JRC106949. Luxembourg: Publications Office of the European Union. https://doi.org/10.2760/094023 (Accessed: 19.07.2024).

KAINYANDE, A. (2024): Exploring climate change perspectives among smallholder farmers in Tonkolili district, Sierra Leone. In: Geo Journal, 89(79).

KAPPES, M.S. / KEILER, M. / von ELVERFELDT, K. / GLADE, T. (2012): Challenges of analyzing multi-hazard risk: a review. Natural Hazards, 64, 1925-1958. https://doi.org/10.1007/s11069-012-0294-2 (Accessed: 19.07.2024).

KING, G. / HONAKER, J. / JOSEPH, A. / SCHEVE, K. (2001): Analyzing incomplete political science data: An alternative algorithm for multiple imputation. In: American Political Science Review, 95(1), 49-69. https://doi.org/10.1017/S0003055401000235 (Accessed: 16.08.2024).

LAVELL, A. / OPPENHEIMER, M. / DIOP, C. / HESS, J. / LEMPERT, R. / LI, J. / MUIR-WOOD, R. / MYEONG, S. / MOSER, S. / TAKEUCHI, K. / CARDONA, O. D. / HALLEGATTE, S. / LEMOS, M. / LITTLE, C. / LOTSCH, A. / WEBER, E. (2012): Climate change: New dimensions in disaster risk, exposure, vulnerability, and resilience. In: Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation: Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC), Cambridge, UK, und New York: Cambridge University Press, 25-64.

LEVINE, M. / MERIGGI, N. / MOBARAK, A. / RAMAKRISHNA, V. / VOORS, M. / WADEHRA, U. (2023): Gendered Disparities during the COVID-19 Crisis in Sierra Leone. In: AEA Papers and Proceedings, 113, 567-571.

LINDORFER, S. (2007): Sharing the Pain of the Bitter Hearts. Liberation Psychology and Gender-Related Violence in Eastern Africa. Berlin: LIT Verlag.

MACH, K. J. / KRAAN, C. M. / ADGER, W. N. / BUHAUG, H. / BURKE, M. / FEARON, J. D. / FIELD, C. B. / HENDRIX, C. S. / MAYSTADT, J. F. / O'LOUGHLIN, J. / ROESSLER, P. / SCHEFFRAN, J. / SCHULTZ, K. A. / VON UEXKULL, N. (2019): Climate as a risk factor for armed conflict. In: Nature, 571(7764), 193-197.

MAVHURA, E. / MANYENA, S.B. / COLLINS, A.E. / MANATSA, D. (2013): Indigenous knowledge, coping strategies and resilience to floods in Muzarabani, Zimbabwe. In: International Journal of Disaster Risk Reduction 5 (2013), 38-48.

MUIS, S. / VERLAAN, M. / WINSEMIUS, H.C. / AERTS, J.C.J.H. / WARD, P.J. (2016): A global reanalysis of storm surge and extreme sea levels. In: Nat. Commun, 7, 1-11.

NAGABHATLA, N. / POURAMIN, P. / BRAHMBHATT, R. / FIORET, C. / GLICKMAN, T. / NEWBOLD, K. B. / SMAKHTIN, V. (2020): Water and Migration: A Global Overview. UNU-INWEH Report Series, Issue 10. United Nations University Institute for Water, Environment and Health, Hamilton, Canada. https://www.researchgate.net/publication/341323257_Water_and_Migration_A_Global_Overview/link/5ebac41da6fdcc90d66f2753/download?_tp=eyJjb250ZXh0IjpTImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uliwicGFnZSI6InB1YmxpY2F0aW9uIn19 (Accessed: 03.05.2024).

NASERI, K. / HUMMEL, M.A. (2022): A Bayesian copula-based nonstationary framework for compound flood risk assessment along US coastlines. Journal of Hydrology, 610, 128005. https://www.sciencedirect.com/science/article/pii/s0022169422005807?casa_token=d5xsvblzgnwaaaaa:bsygpqorttnzsayrpwfcnrbpggbi3-8pxytjrkqcqjmdlqu9swizz7wp_--djkaaduu62nsfjoc (Accessed: 19.07.2024).

NGUYEN, H.D. / NGUYEN, T.H. / NGUYEN, Q.H. / DANG, D.K. / NGUYEN, Y.N. / BUI, T.H. / NGUYEN, N.D. / BUI, Q.-T. / BRECAN, P. / PETRISOR, A.-I. (2023): Bottom-up approach for flood-risk management in developing countries: a case study in the Gianh River watershed of Vietnam. Natural hazards, 118(3), 1933-1959. https://doi.org/10.1007/s11069-023-06098-4 (Accessed: 19.07.2024).

NOE, D. / RIECKMANN, J. (2013): Violent Behaviour: The effect of civil conflict on domestic violence in Colombia (No. 136). Courant Research Centre: Poverty, Equity and Growth-Discussion Papers. http://www2.vwl.wiso.uni-goettingen.de/courant-papers/CRC-PEG_DP_136.pdf (Accessed: 23.05.2024).

OECD [Organisation for Economic Co-operation and Development] (2022): States of Fragility 2022. https://www.oecd.org/dac/states-of-fragility-fa5a6770-en.htm (Accessed: 12.05.2024).

OXFAM (2023a): Water Dilemmas: The cascading impacts of water insecurity in a heating world. https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621548/bp-water-dilemmas-280923-en.pdf?sequence=1 (Accessed: 03.05.2023).

OXFAM (2023b): Water Dilemmas: The cascading impacts of water insecurity in a heating world. https://

oxfamilibrary.openrepository.com/bitstream/handle/10546/621548/bp-water-dilemmas-280923-en.pdf?sequence=1 (Accessed: 03.05.2024).

OXFAM (2023c): Klima der Ungleichheit. Wie extremer Reichtum weltweit die Klimakrise, Armut und Ungleichheit verschärft. https://www.oxfam.de/system/files/documents/20231120-oxfam-klima-ungleichheit.pdf (Accessed: 03.05.2024).

PEDUZZI, P. / DAO, H. / HEROLD, C. / MOUTON, F. (2009): Assessing global exposure and vulnerability towards natural hazards: the Disaster Risk Index. In: Natural hazards earth system science, 9(4), 1149–1159. https://doi.org/10.5194/nhess-9-1149-2009 (Accessed: 16.08.2024).

PESCAROLI, G. / ALEXANDER, D. (2015): A definition of cascading disasters and cascading effects: going beyond the "toppling dominos" metaphor. In: GRF Davos Planet@Risk, Volume 3, Number 1. 58-67.

PESCAROLI, G. / ALEXANDER, D. (2018): Understanding Compound, Interconnected, Interacting, and Cascading Risks: A Holistic Framework. Risk Analysis. https://doi.org/10.1111/risa.13128 (Accessed: 19.07.2024).

PETERS, K. (2017): The next frontier for disaster risk reduction: tackling disasters in fragile and conflict-affected contexts. London: ODI.

PETERS, K. (2018): Disasters, climate change, and securitisation: the United Nations Security Council and the United Kingdom's security policy. In: Disasters, 42(S2), 196-214.

PETERS, K. / HOLLOWAY, K. (2019): Disaster risk reduction in conflict contexts: the state of the evidence. London: ODI.

PETERS, K. / KEEN, D. / MITCHELL, T. (2013): When disasters and conflicts collide: improving links between disaster resilience and conflict prevention. London: ODI.

PHILLIPS, C.A. / CALDAS, A. / CLEETUS, R. / DAHL, K.A. / DECLET-BARRETO, J. / LICKER, R. / MERNER, L.D. / ORTIZ-PARTIDA, J.P. / PHELAN, A.L. / SPANGER-SIEGFRIED, E. / TALATI, S. / TRISOS, C.H. / CARLSON, C.J. (2020): Compound climate risks in the COVID-19 pandemic. Nature Climate Change, 10(7), 586-588. https://doi.org/10.1038/s41558-020-0804-2 (Accessed: 19.07.2024).

RALEIGH, C. / KISHI, K. (2024): ACLED Conflict Index. https://acleddata.com/conflict-index/ (Accessed: 18.06.2024).

RENN, O. / LAUBICHLER, M. / LUCAS, K. / KRÖGER, W. / SCHANZE, J. / SCHOLZ, R. W. / SCHWEIZER, P. (2022): Systemic Risks from Different Perspectives. In: Risk Analysis, Volume 42, Issue 9. 1893-2124.

RENTSCHLER, J. / SALHAB, M. / JAFINO, B. (2022): Flood exposure and poverty in 188 countries. In: Nature Communications, 3527. https://www.nature.com/articles/s41467-022-30727-4 (Accessed: 09.07.2024).

RIFS POTSDAM [Forschungsinstitut für Nachhaltigkeit Helmholtz-Zentrum Potsdam] (n.D.): Systemische Risiken. https://www.rifs-potsdam.de/de/forschung/systemische-risiken (Accessed: 12.07.2024).

ROCHA, I. C. N. / DOS SANTOS COSTA, A. C./ ISLAM, Z. / JAIN, S. / GOYAL, S. / MOHANAN, P./ ESSAR, M. Y./ AHMAD, S. (2021): Typhoons during COVID-19 Pandemic in the Philippines: Impact of Double Crises on Mental Health. In: Disaster Medicine and Public Health Preparedness, 1-4,1-13.

SADEGH, M. / MOFTAKHARI, H. / GUPTA, H.V. / RAGNO, E. / MAZDIYASNI, O. / SANDERS, B. / MATTHEW, R / AGHAKOUCHAK, A. (2018):"Multihazard Scenarios for Analysis of Compound Extreme Events", Geophysical Research Letters 45(11), 5470-5480. https://doi.org/10.1029/2018GL077317 (Accessed: 19.07.2024).

SCHVITZ, G. / CORBANE, C. / VAN DAMME, M. / GALARIOTIS, I. / VALLI, I. (2022): The Global Conflict Risk Index 2022: Revised Data and Methods. https://op.europa.eu/en/publication-detail/-/publication/0ccfd47c-76ad-11ed-9887-01aa75ed71a1/language-en (Accessed: 18.06.2024).

SEMET, D. / BURAKOWSKI, J. (2022): Open Data for Forecast-based Action. In: World Risk Report 2022, 63. Bündnis Entwicklung Hilft. https://weltrisikobericht.de/wp-content/uploads/2022/09/WorldRiskReport-2022_Online.pdf (Accessed: 19.07.2024).

SESAY, A. R. / KALLON, S. (2022): Livestock farmers' perception, perceived impacts, and adaptations to climate change in Koinadugu district, Sierra Leone. In: Journal of Applied and Advanced Research, 7.

SILLMANN, J. / CHRISTENSEN, I. / HOCHRAINER-STIGLER, S. / HUANG-LACHMANN, J.-T. / JUHOLA, S. / KORNHUBER, K. / MAHECHA, M.D. / MECHLER, R. / REICHSTEIN, M. / RUANE, A.C. / SCHWEIZER, P.-J. / WILLIAMS, S. (2022): Briefing note on systemic risk, UNDRR, 35. https://www.undrr.org/publication/briefing-note-systemic-risk (Accessed: 22.04.2024).

SIMBA, H. / NGCOBO, S. (2020): Are Pandemics Gender Neutral? Women's Health and COVID-19. https://www.frontiersin.org/articles/10.3389/fgwh.2020.570666/full#B11 (Accessed: 27.05.2024).

TANKINK, M. / OTTO, B. / MANGEN, P. O. (2022): "Peace Starts with Peace of Mind": Study of the Intersection between Postconflict Trauma, Peacebuilding and Economic Development in Northern Uganda. https://www.researchgate.net/publication/361122927_Peace_starts_with_peace_of_mind_Study_of_the_intersection_between_postconflict_trauma_peacebuilding_and_economic_development_in_Northern_Uganda (Accessed: 12.05.2024).

TUNÇER-KILAVUZ, I. (2019): Success or failure in the peace processes of Aceh and Sri Lanka: a comparative study. In: Terrorism and Political Violence, 31(4), 712-732.

UN OCHA (2024a): WEST AND CENTRAL AFRICA - Democratic Republic of the Congo. https://www.unocha.org/democratic-republic-congo (Accessed: 24.05.2024).

UN OCHA (2024b): Humanitarian Action – Analysing Needs and Response. https://humanitarianaction.info/ (Accessed: 16.08.2024).

UNDRR (2019): Global Assessment Report on Disaster Risk Reduction. Genf, Schweiz: UNDRR, 425. https://www.undrr.org/publication/global-assessment-report-disaster-risk-reduction-2019 (Accessed: 22.04.2024).

UNDRR (2022): Technical Guidance on Comprehensive Risk Assessment and Planning in the Context of Climate Change. United Nations Office for Disaster Risk Reduction. https://www.undrr.org/media/79566/download?startDownload=true. (Accessed: 15.07.2024).

UNDRR (2023a): Evidence of positive progress on disaster risk reduction in the humanitarian-development-peace nexus. Genf: UNDRR.

UNDRR (2023b): Financing disaster risk reduction in humanitarian and crisis settings. Genf: UNDRR.

UNDRR (2024): Coming soon! A new disaster losses and damages tracking system, UNDRR. https://www.undrr.org/disaster-losses-and-damages-tracking-system (Accessed: 22.04.2024).

UNDRR / UNU-EHS (2022): Understanding and managing cascading and systemic risks: lessons from COVID-19. https://www.undrr.org/media/79311/download?startDownload=20240712 (Accessed: 12.07.2024).

UNHCR (2024): Refugee Data Finder. https://popstats.unhcr.org/refugee-statistics/ (Accessed: 03.05.2024).

UNICEF (2023): UN-Bericht: Wegen multiplen Krisen leiden 122 Millionen mehr Menschen unter Hunger als 2019. https://www.unicef.de/informieren/aktuelles/presse/-/122-millionen-mehr-menschen-leiden-unter-hunger/335736 (Accessed: 09.07.2024).

UNITED NATIONS (2023): Main findings and recommendations of the midterm review of the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 (A/77/640). New York: United Nations General Assembly.

UNITED NATIONS (2024a): The United Nations World Water Development Report 2024: Water for Prosperity and Peace. UNESCO, Paris. https://unesdoc.unesco.org/ark:/48223/pf0000388948 (Accessed: 03.05.2024).

UNITED NATIONS (2024b): Conflict-Related Sexual Violence. Report Of The United Nations Secretary-General. https://www.un.org/sexualviolenceinconflict/wp-content/uploads/2024/05/SG-2023-annual-reportsmallFINAL.pdf (Accessed: 15.07.2024).

UNDP (2022): Bericht über die menschliche Entwicklung 2022. Ein unsicheres Leben in ungewissen Zeiten. https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22overviewdepdf.pdf (Accessed: 04.04.2024).

UNDP (2023): Multidimensional Poverty in Sierra Leone. https://www.undp.org/sites/g/files/zskgke326/files/2023-11/undp_sl_multidimentsional_poverty_index_2023.pdf (Aufruf 23.04.2024).

UNITED STATES HOLOCAUST MEMORIAL MUSEUM (2023): Early Warning Project – Methodology: Statistical Model. https://earlywarningproject.ushmm.org/methodology-statistical-model (Accessed: 18.06.2024).

UN-WATER (2013): What is Water Security? Infographic. https://www.unwater.org/publications/what-water-security-infographic (Accessed: 03.05.2024).

UN-WATER (2022a): Democratic Rebublic of the Congo, SDG 6 snapshot in Democratic Republic Of The Congo. https://www.sdg6data.org/en/country-or-area/Democratic%20Republic%20of%20the%20Congo#anchor_6.1.1 (Accessed: 09.07.2024).

UN-WATER (2022b): Sierra Leone. SDG 6 snapshot in Sierra Leone. https://www.sdg6data.org/en/country-or-area/sierra%20leone#anchor_6.1.1 (Accessed: 09.07.2024).

VAN DER WAERDEN, B. L. (1969): Mathematical statistics. Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-662-22137-2 (Accessed: 16.08.2024).

VON UEXKULL, N. / CROICU, M. / FJELDE, H. / BUHAUG, H. (2016): Civil conflict sensitivity to growing-season drought. In: Proceedings of the National Academy of Sciences, 113(44), 12391-12396.

WALCH, C. (2018): Weakened by the storm: rebel group recruitment in the wake of natural disasters in the Philippines. In: Journal of Peace Research, 55(3), 336-350.

WELLER, D. (2022): The WorldRiskIndex 2022. In: Bündnis Entwicklung Hilft & IFHV (ed.), WorldRiskReport 2022, 38-50. https://weltrisikobericht.de/wp-content/uploads/2022/09/WorldRiskReport-2022_Online.pdf (Accessed: 18.06.2024).

WELTHUNGERHILFE (2024): El Niño - Entstehung & Auswirkung des Wetterphänomens. https://www.welthungerhilfe.de/informieren/themen/klimawandel/el-nino (Accessed: 01.07.2024).

WHO (2012): Atlas of Health and Climate. https://iris.who.int/bitstream/handle/10665/76224/9789241564526_section_2_eng.pdf?sequence=3 (Accessed: 03.05.2024).

WHO (2018a): COP24 Special Report. Health & Climate Change. https://iris.who.int/bitstream/handle/10665/276405/9789241514972-eng.pdf?sequence=1 (Accessed: 15.07.2024).

WHO (2018b): Mental Health: Strengthening our response. https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response (Accessed: 12.05.2024).

WILKINSON, O. (2015): Faith and Resilience after Disaster - The Case of Typhoon Haiyan. https://www.miseancara.ie/wp-content/uploads/2022/02/Faith-Resilience-After-Disaster.pdf (Accessed: 17.06.2024).

WILMKING, M. / MAATEN-THEUNISSEN, M. / MAATEN, E. / SCHARNWEBER, T. / BURAS, A. / BIERMANN, C. / GURSKAYA, M. / HALLINGER, M. / LANGE, J. / SHETTI, R. / SMILJANIC, M. / TROUILLIER, M. (2020): Global assessment of relationships between climate and tree growth. Global Change Biology, 26(6), 3212-3220. https://doi.org/10.1111/gcb.15057 (Accessed: 19.07.2024).

WISNER, B. / BLAIKIE, P. / CANNON, T. / DAVIES, I. (2004): At Risk: Natural hazards, people's vulnerability and disasters. London, New York: Routledge.

WMO [WORLD METEOROLOGICAL ORGANIZATION] (2022a): State of Global Water Resources 2022 Report. https://library.wmo.int/viewer/68473/download?file=1333_en.pdf&type=pdf&navigator=1 (Accessed: 03.05.2024).

WMO [WORLD METEOROLOGICAL ORGANIZATION] (2022b): Droughts threaten sustainable development. https://wmo.int/media/news/droughts-threaten-sustainable-development (Accessed: 09.07.2024).

WORLD BANK (2017): Yemen: integrated urban services emergency project. Washington, D.C.: World Bank. https://projects.worldbank.org/en/projects-operations/project-detail/P164190 (Aufruf 05.08.2024).

WORLD BANK (2020): Sierra Leone Economic Update, The Power of Investing in Girls. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/131511593700755950/sierra-leone-economic-update-2020-the-power-of-investing-in-girls (Accessed: 20.04.2024).

WORLD BANK (2023a): Population, total – Congo, Dem. Rep. https://data.worldbank.org/indicator/SP.POP.TOTL?locations=CD (Aufruf 05.08.2024).

WORLD BANK (2023b): Population, total – Sierra Leone. https://data.worldbank.org/indicator/SP.POP.TOTL?locations=SL (Accessed: 05.08.2024).

WORLD ECONOMIC FORUM (2024): Quantifying the Impact of Climate Change on Human Health. https://www.weforum.org/publications/quantifying-the-impact-of-climate-change-on-human-health/ (Accessed: 09.07.2024).

ZAIDI, R. Z. (2018): Beyond the Sendai indicators: application of a cascading risk lens for the improvement of loss data indicators for slow-onset hazards and small-scale disasters. In: International Journal of Disaster Risk Reduction, Volume 30, Part B. 306-314.

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Governance and Civil Society

Environmental Degradation and Disasters

Health and Healthcare

The City as a Risk Area

Food Security

Logistics and Infrastructure

Analysis and Prospects

Child Protection and Children's Rights

Water Supply

Forced Displacement and Migration

Social Protection

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Diversity

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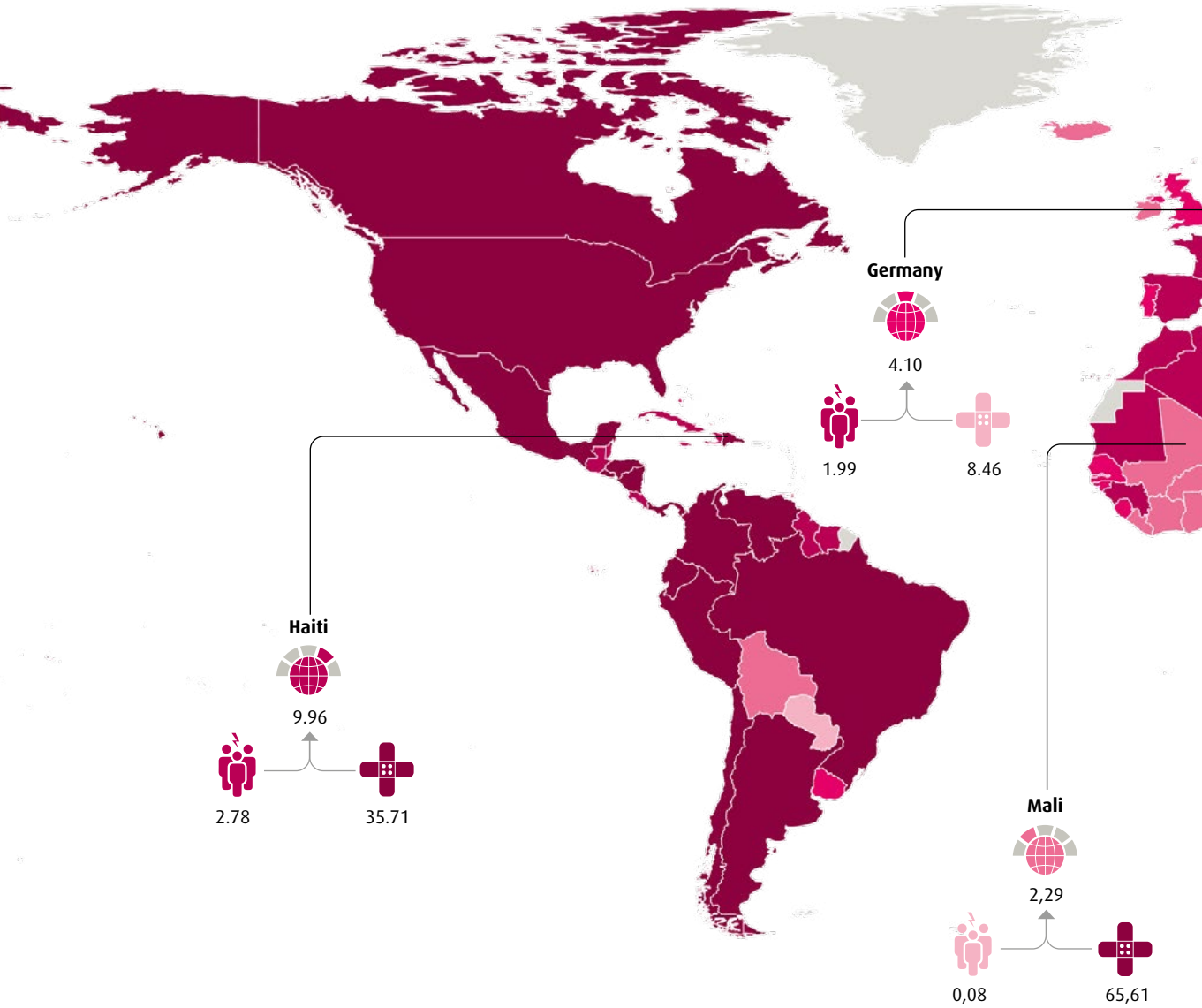
Gemeinsam für Menschen in Not

WorldR



WorldRiskIndex

very low	0.00	–	1.84
low	1.85	–	3.20
medium	3.21	–	5.87
high	5.88	–	12.88
very high	12.89	–	100.00
no data			

Exposure

very low	0.00	–	0.17
low	0.18	–	0.56
medium	0.57	–	1.76
high	1.77	–	7.78
very high	7.79	–	100.00
no data			

Vulnerability

very low	0.00	–	9.90
low	9.91	–	15.87
medium	15.88	–	24.43
high	24.44	–	33.01
very high	33.02	–	100.00
no data			

Since 2022, the WorldRiskIndex and its elements will use fixed thresholds for the classification of countries to enable medium- and long-term trends analyses. These threshold values fo
kIndex model is always based on unweighted geometric mean values.
Data sources: IFHV's own calculation based on CReSIS, EMDAT FAO, GFDRR, IHME, IDMC, JRC, IMF, ILO, UCDP, UNESCO, UNHCR, UNSIDR, WHO, Worldbank, WorldPop, WID; detailed informatio

RiskIndex 2024

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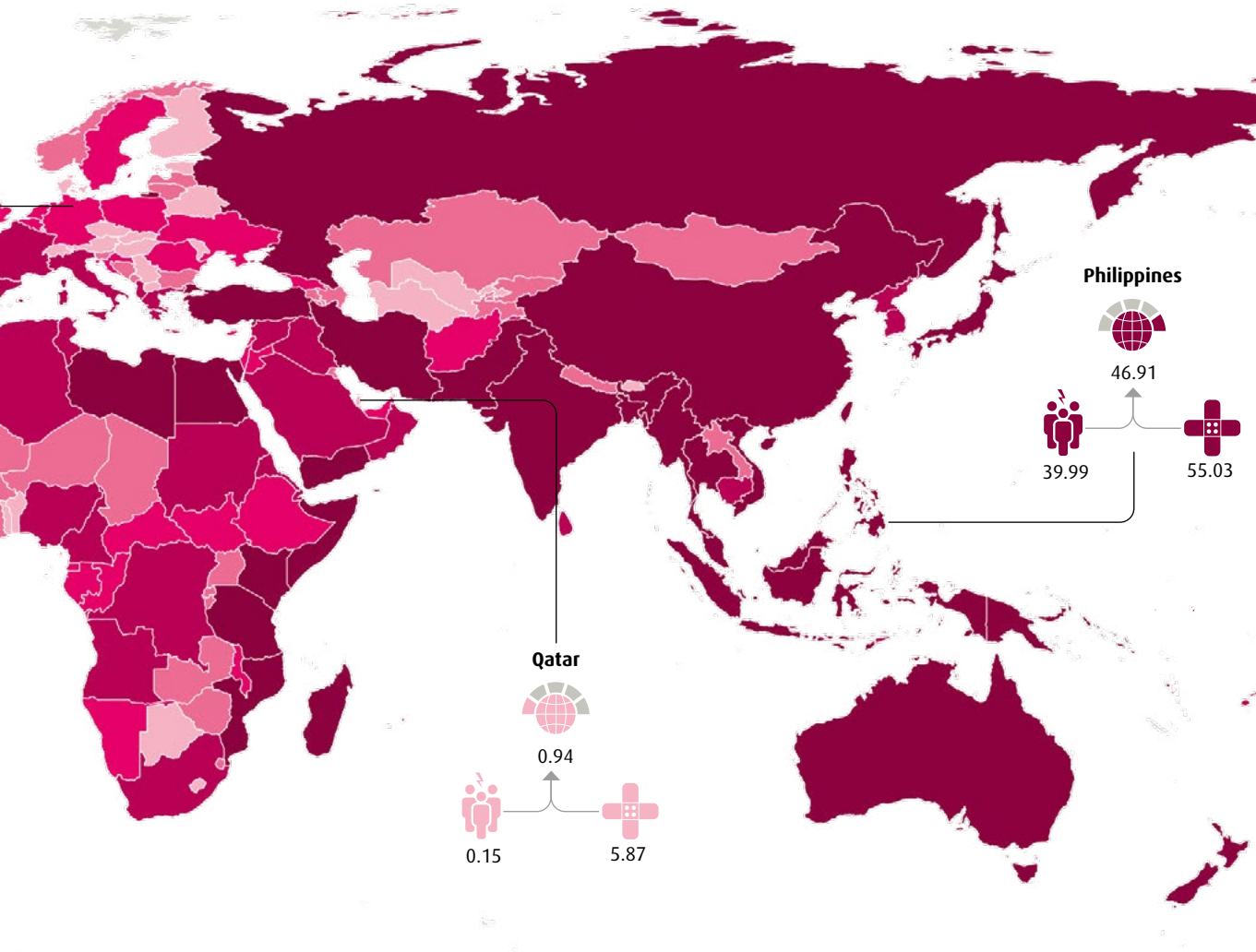


Top 10 countries with highest risk

1.	Philippines	46.91
2.	Indonesia	41.13
3.	India	40.96
4.	Colombia	37.81
5.	Mexico	35.93
6.	Myanmar	35.85
7.	Mozambique	34.44
8.	Russian Federation	28.12
9.	Bangladesh	27.73
10.	Pakistan	27.02

Top 10 countries with highest exposure

1.	China	64.59
2.	Mexico	50.08
3.	Japan	43.67
4.	Philippines	39.99
5.	Indonesia	39.89
6.	United States of America	39.59
7.	India	35.99
8.	Colombia	31.54
9.	Australia	31.21
10.	Russian Federation	28.35

Top 10 countries with highest vulnerability

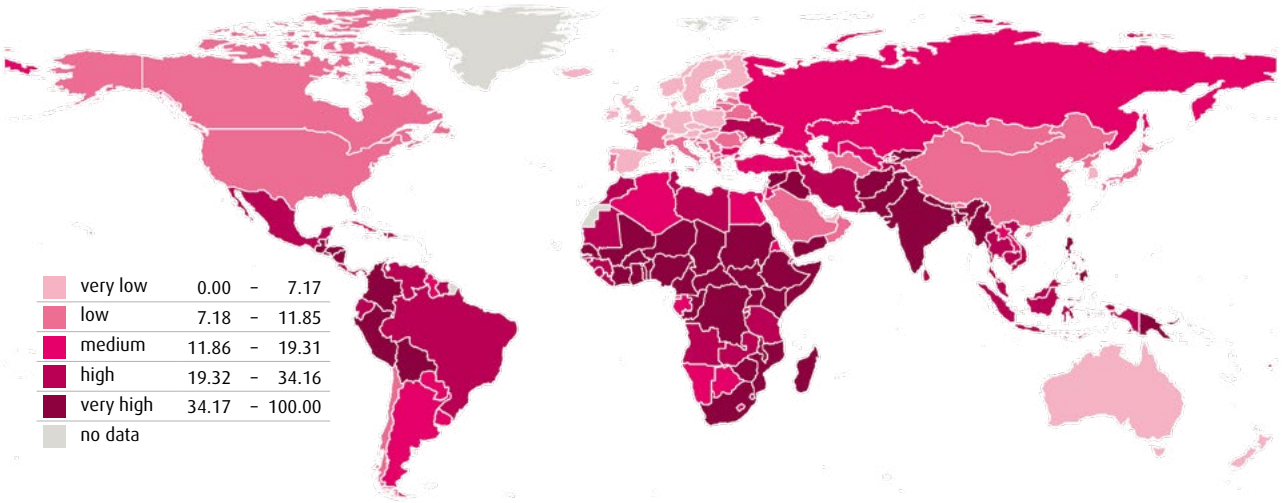
1.	Central African Republic	73.86
2.	South Sudan	72.39
3.	Chad	71.82
4.	Democratic Republic of Congo	71.04
5.	Somalia	71.02
6.	Afghanistan	67.77
7.	Niger	66.48
8.	Nigeria	65.88
9.	Ethiopia	65.69
10.	Yemen	65.64

r the WorldRiskIndex and each dimension were calculated as the median of the quintiles form the results of the last 20 years. The aggregation of values across all levels of the WorldRis-

n at www.WorldRiskReport.org.

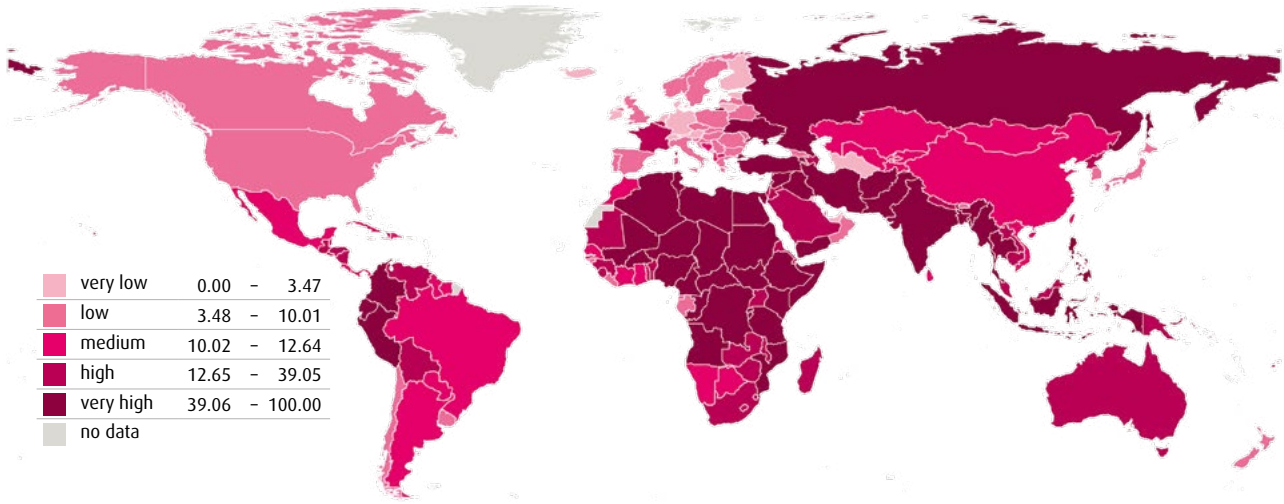
Susceptibility

Dependent on the level of socio-economic development, social disparities, deprivations, and vulnerable population groups



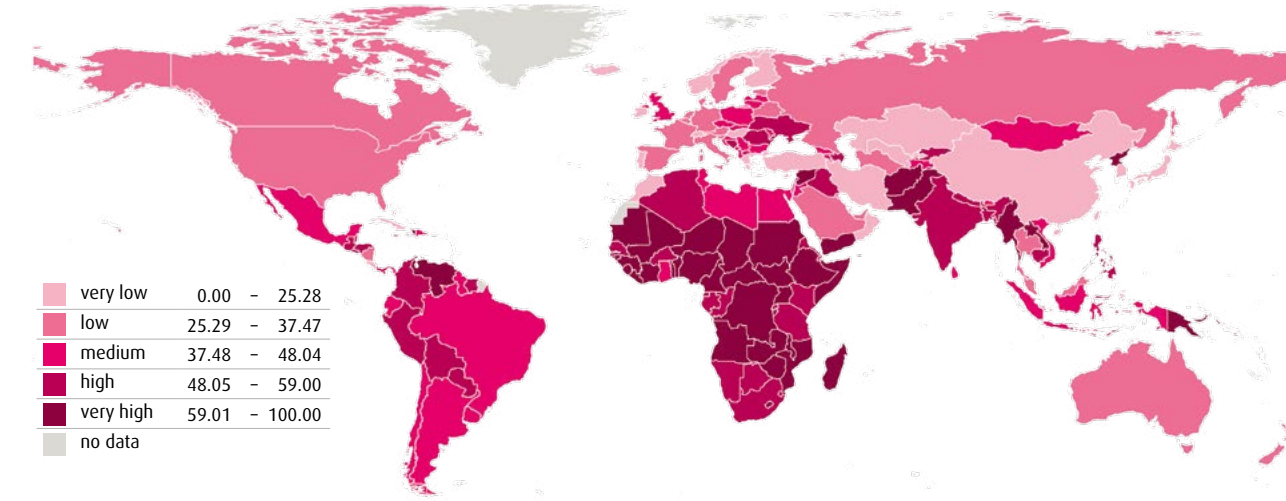
Lack of Coping Capacities

Dependent on social shocks, political stability and the rule of law, health care capacities, infrastructure, and material protection



Lack of Adaptive Capacities

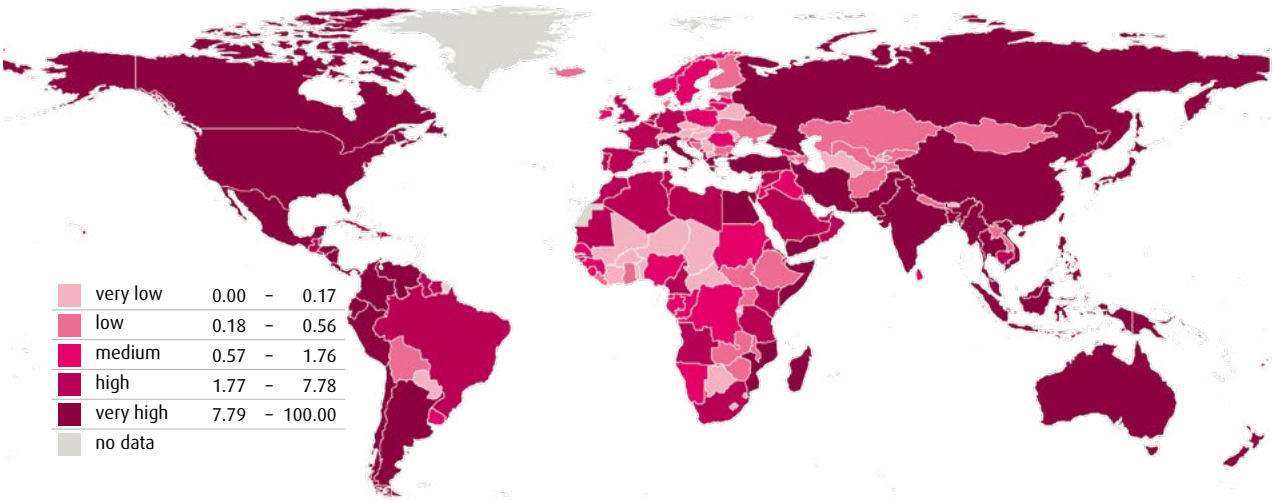
Related to developments in education and research, reduction of disparities, investments, disaster prevention, and climate protection



Beginning in 2022, the WorldRiskIndex and its components will use fixed thresholds for classifying countries to allow for medium- and long-term trend analysis. These threshold values for the
always based on unweighted geometric means.
Data sources: IFHV's own calculation based on CReSIS, EMDAT, FAO, GFDRR, IHME, IDMC, JRC, IMF, ILO, UCDP, UNESCO, UNHCR, UNSIDR, WHO, Worldbank, WorldPop, WID; detailed information at w

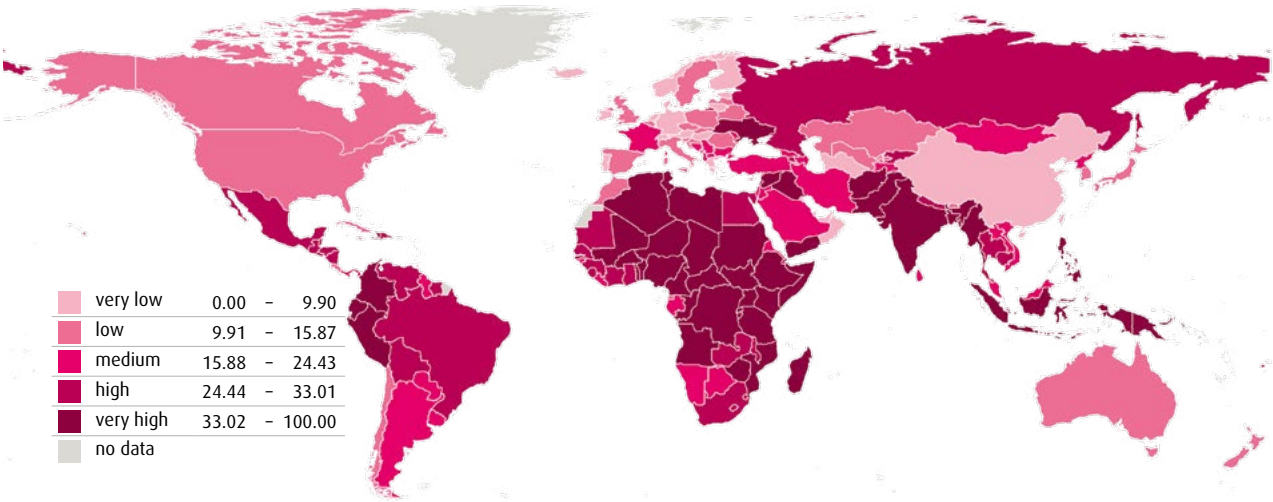
Exposure

Sphere of exposure to earthquakes, tsunamis, coastal flooding, riverine flooding, cyclone, droughts, and sea level rise



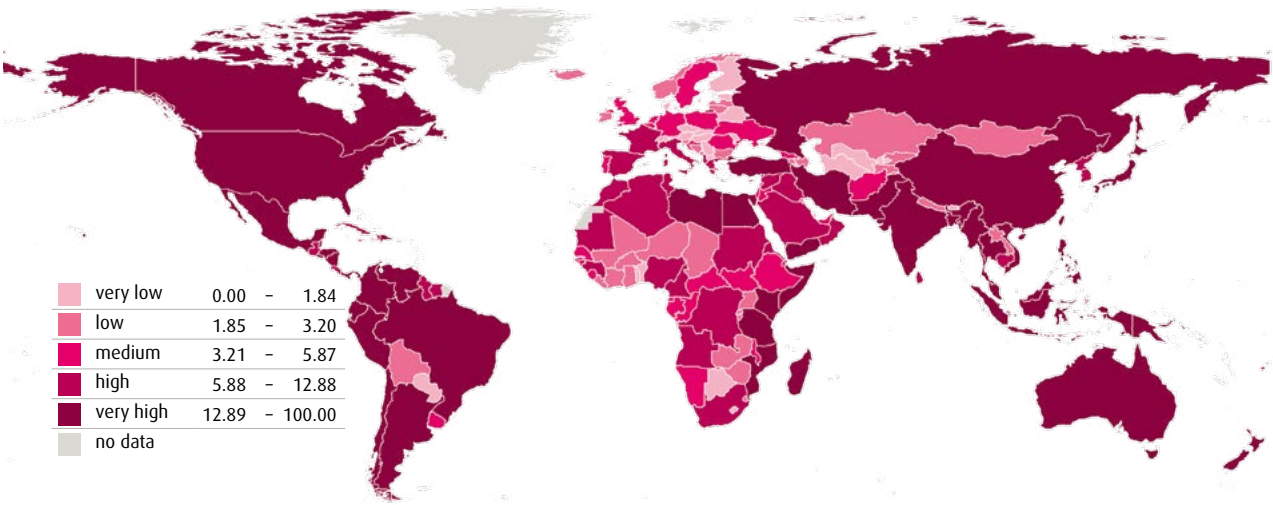
Vulnerability

Sphere of societal vulnerability consisting of susceptibility, lack of coping capacities, and lack of adaptive capacities



WorldRiskIndex

Geometric mean of exposure and vulnerability



WorldRiskIndex and each dimension have been calculated as the median of the quintile scores over the last 20 years. The aggregation of values across all levels of the WorldRiskIndex model is

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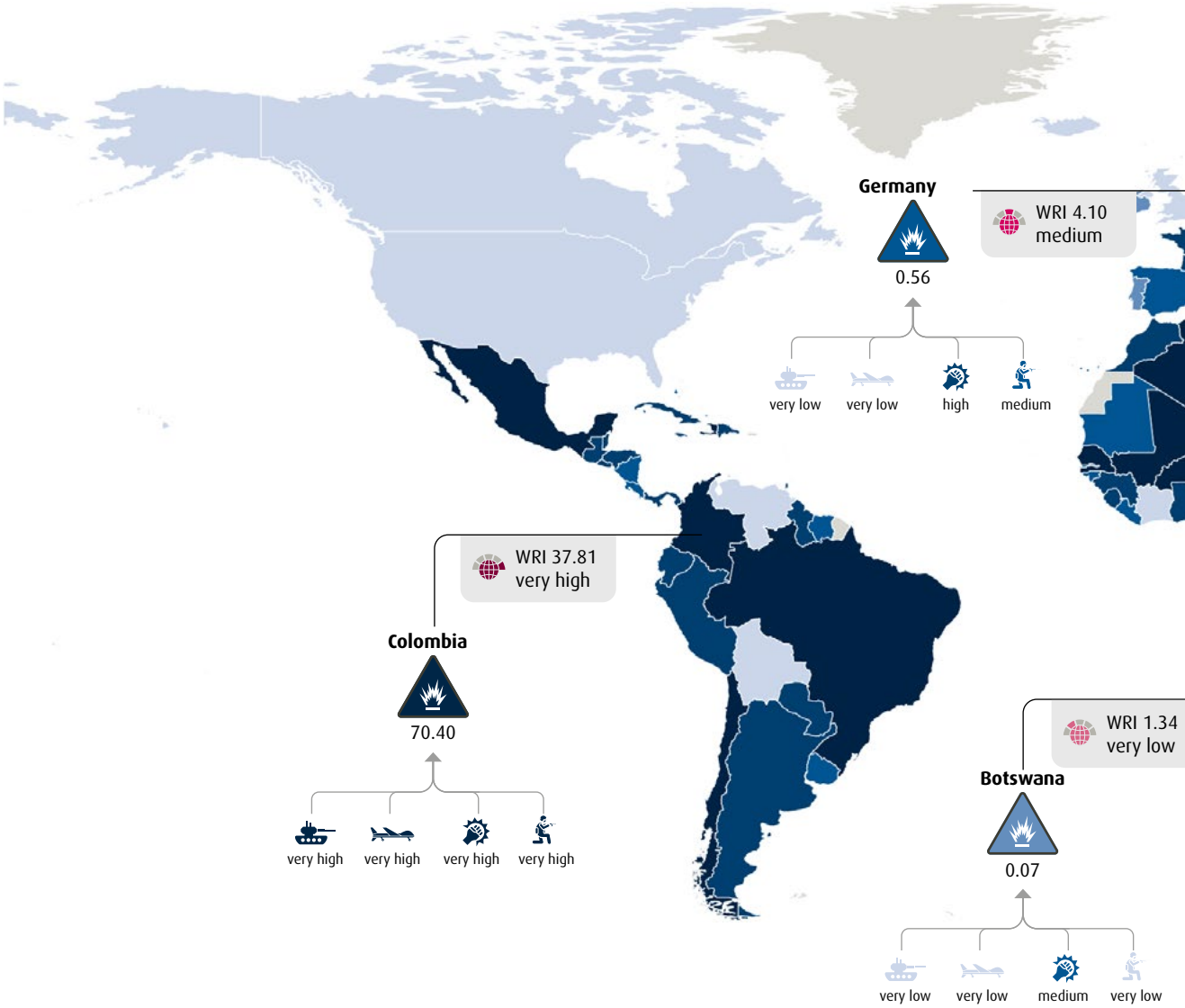
World Map



The 10 countries with the highest conflict exposure

1.	Colombia	70.40
2.	Brazil	67.66
3.	Pakistan	62.15
4.	Mexico	61.90
5.	Myanmar	61.32
6.	Nigeria	61.21
7.	Lebanon	60.16
8.	Iraq	60.03
9.	Sudan	55.45
10.	Israel	53.89

In addition to extreme natural events and the effects of climate change, the risk profile of many countries and regions is also shaped by war, conflict and uprisings. The extent to which people are affected by these events is shown in this world map, which was calculated analogously to the exposure sphere of the WorldRiskIndex (Weller 2022) and is part of this year's additional analysis based on the new *Conflict Exposure Dataset* (ACLED 2024).

The map highlights regions that are particularly affected by conflict, notably Central and North Africa, South and Central America and South Asia. There are clear differences in terms of exposure to natural extreme events and climate change, reflecting the fact that the underlying drivers of these risks are very different. However, there are also the examples of Colombia, Pakistan, Myanmar and Somalia, which have very high scores on both dimensions of exposure. They show that it

Data sources: IFHV's own calculation based on Conflict Exposure Dataset 2023 of Armed Conflict Location and Event Data (ACLED) and WorldPop Research Programme..

p of Conflict Exposure

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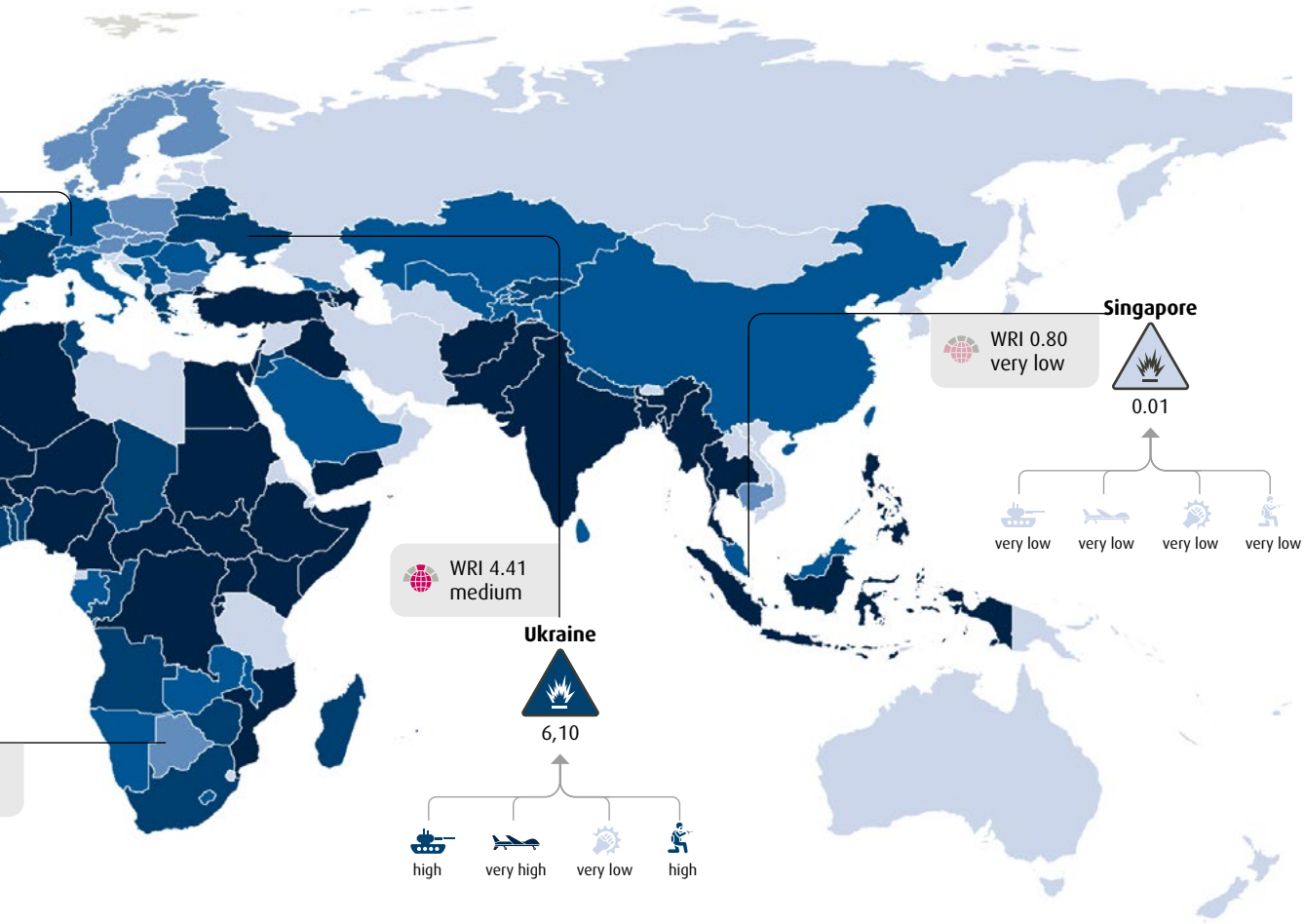

would be useful to consider both types of risk together in a holistic risk assessment (*compound risk analysis*). However, more research is needed to better understand the complex interactions and specific causes of the different types of risk (see Chapter 3).

Conflict exposure

	very low	0.00 –	0.01
	low	0.02 –	0.07
	medium	0.08 –	0.60
	high	0.61 –	7.25
	very high	7.26 –	100.00
	no data		

Event types*

Battles

Remote Violence and Explosions

Riots

Violence Against Civilians

very low
low
medium
high
very high

* The classification is based on quintile limits, which may vary across different event types.

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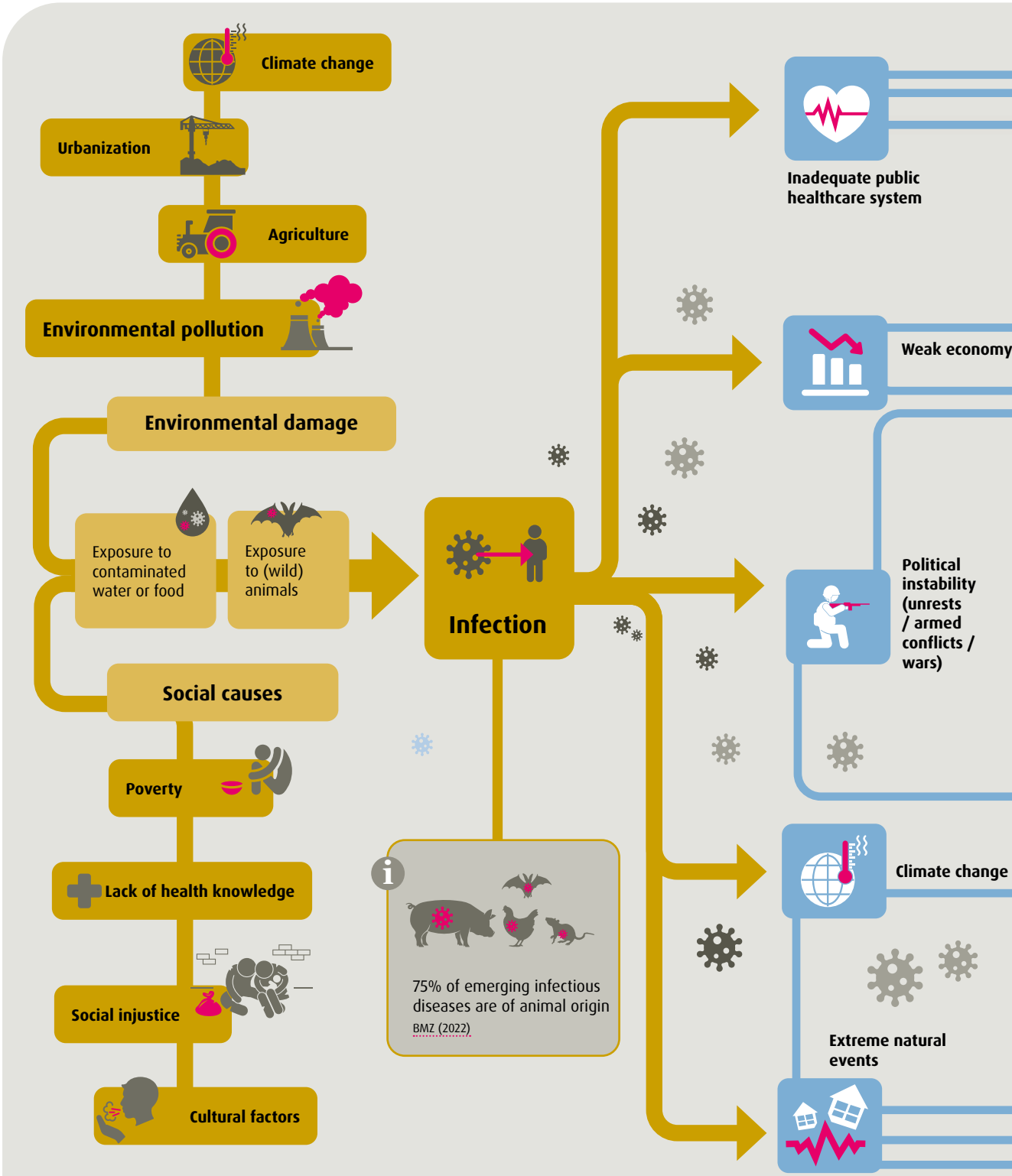
Epidemics a



s Multiple Crisis Events

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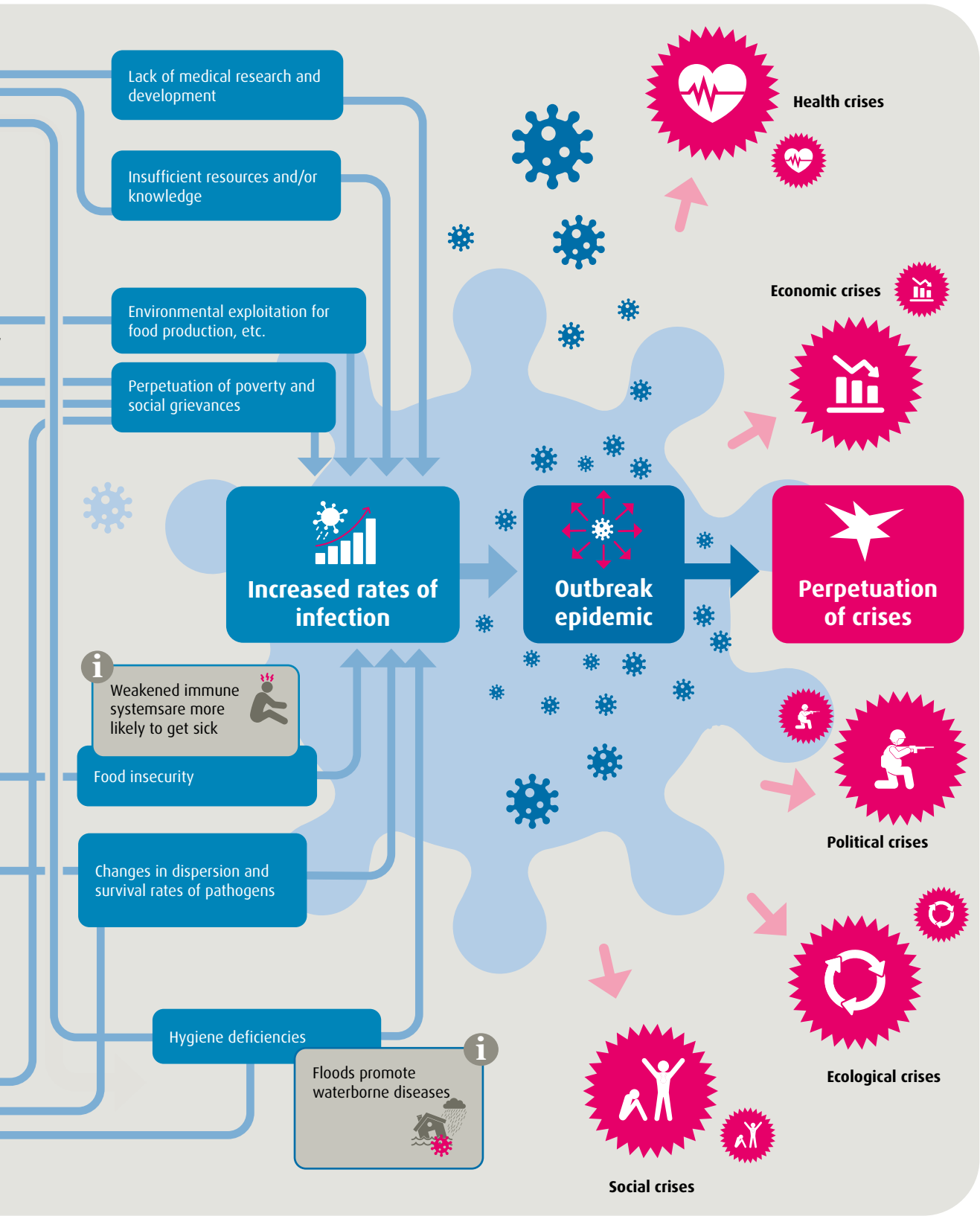

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